C/007/020

HORIZON MINE

RESOURCE RECOVERY AND PROTECTION PLAN

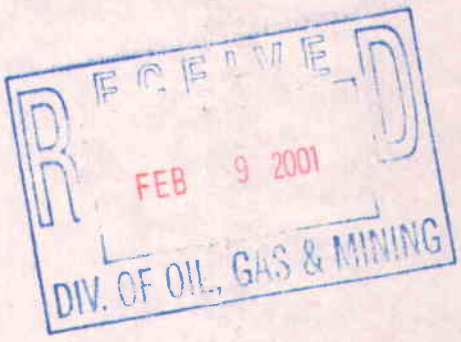
FEDERAL COAL LEASE NO:
Lease U-74804

Submitted To:	Submitted By:
Bureau of Land Management United States Department of the Interior Price, Utah	Lodestar Energy, Inc HC 35 Box 370 Helper, UT 84526

NOVEMBER 4, 1999

Prepared By:

Mencon LLC
890 E 2800 S
Price, UT 84501



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Mr. David B. Miller
Lodestar Energy, Inc.
HC 35 Box 370
Helper, Utah 84526

Re: Minor Amendment to Resource Recovery and Protection Plan (R2P2) Horizon Mine, Lodestar Energy, Inc., November 4, 1999

Dear Mr. Miller:

On January 30, the Bureau of Land Management (BLM) received Lodestar Energy, Inc.'s request for a minor amendment to the approved Resource Recovery Protection Plan (R2P2) for the Horizon Mine. This letter is to notify you that the BLM has completed our review of Lodestar Energy, Inc.'s minor amendment to the approved R2P2 regarding the Horizon Mine. The purpose of our review is to determine compliance with The Mineral Leasing Act of 1920, as amended, the regulations at 43CFR 3480, and the lease terms and conditions; and to ensure that maximum economic recovery (MER) will be achieved.

Our determination of the subject minor amendment is as follows:

- Since DOGM approval for the complete lease is not likely for some time, a new stipulation has been added below allowing for mining south of "Beaver".
- Recoverable coal reserves for UTU-74804 are 6,295,700 as determined by the May 12, 1998 Engineering and Geologic Report.
- The actual sequencing and initial date of commencement of mining operations on UTU-74804 will probably change. Once all the permits are in place, a revised sequence and timing map will need to be submitted to the BLM.

Based upon the above-stated requirements, BLM determination is conditioned with the following stipulation:

Original Stipulation: Horizon shall submit the following information (as requested above):

- An updated mine plan that details mining sequencing and any other changes will be submitted when all permits are in place, but prior to commencement of operations on

the Federal lease.

New Stipulation:

- R2P2 approval is for areas south of "Beaver" as shown on the approved R2P2 amended map. Areas north of "Beaver are NOT to be mined prior to all permits being in place.

BLM has determined that the information contained in the R2P2 amendment for the Horizon Mine with stipulation does comply with the Mineral Leasing Act of 1920, as amended, the regulations at 43 CFR 3480, and the lease terms and stipulations. Thus, approval for the Horizon Mine's R2P2 amendment is granted. If you have any questions, please contact Jay Marshall at the Price Field Office at (435) 636-3614.

Sincerely,

Robert L. Mann

Field Manager

cc: UT-921, SD, Utah
Utah Division of Oil, Gas and Mining
355 West North Temple Street
3 Triad Center Ste. 350
Salt Lake City, Utah 84180-1203
Joe Wilcox
Office of Surface Mining
Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

Table of Contents

1	**RESOURCE RECOVERY AND PROTECTION PLAN**
2	**MSHA PLANS & SKETCHES:** - TYPICAL SKETCH OF MAINS - TYPICAL SKETCH OF PANEL - MSHA ROOF CONTROL PLAN - MSHA VENTILATION PLAN
3	**RECLAMATION**
4	**OVERVIEW MAP OF MINE, HAULROAD, AND LOADOUT**
5	**MAP INDEX (10 MAPS)**

TABLE OF CONTENTS

TOPIC	PAGE
INTRODUCTION	1
NAMES, ADDRESSES, PHONE NUMBERS OF PERSONS RESPONSIBLE	2
FEDERAL LEASE SERIAL NUMBERS	3
NAMES AND ADDRESSES OF OTHER COAL OWNERS	4
NAMES AND ADDRESSES OF SURFACE LAND OWNERS	5
Within the Plan Area	5
Contiguous to the Plan Area	5
GENERAL DESCRIPTION OF GEOLOGY AND COAL RESOURCES	8
Stratigraphy	8
Geologic Structure	10
Coal Resources	11
DESCRIPTION OF MINING OPERATION	16
Coal Analysis	16
Methods of Mining	18
Mining Sequence	20
Production Rate	21
Estimated Recovery Factors	22
Coal Reserves	24
METHOD OF ABANDONMENT	25
GENERAL RECLAMATION SCHEDULE	26
MAXIMUM ECONOMIC RECOVERY	27
COAL QUALITY SUPPLIMENT	End of section

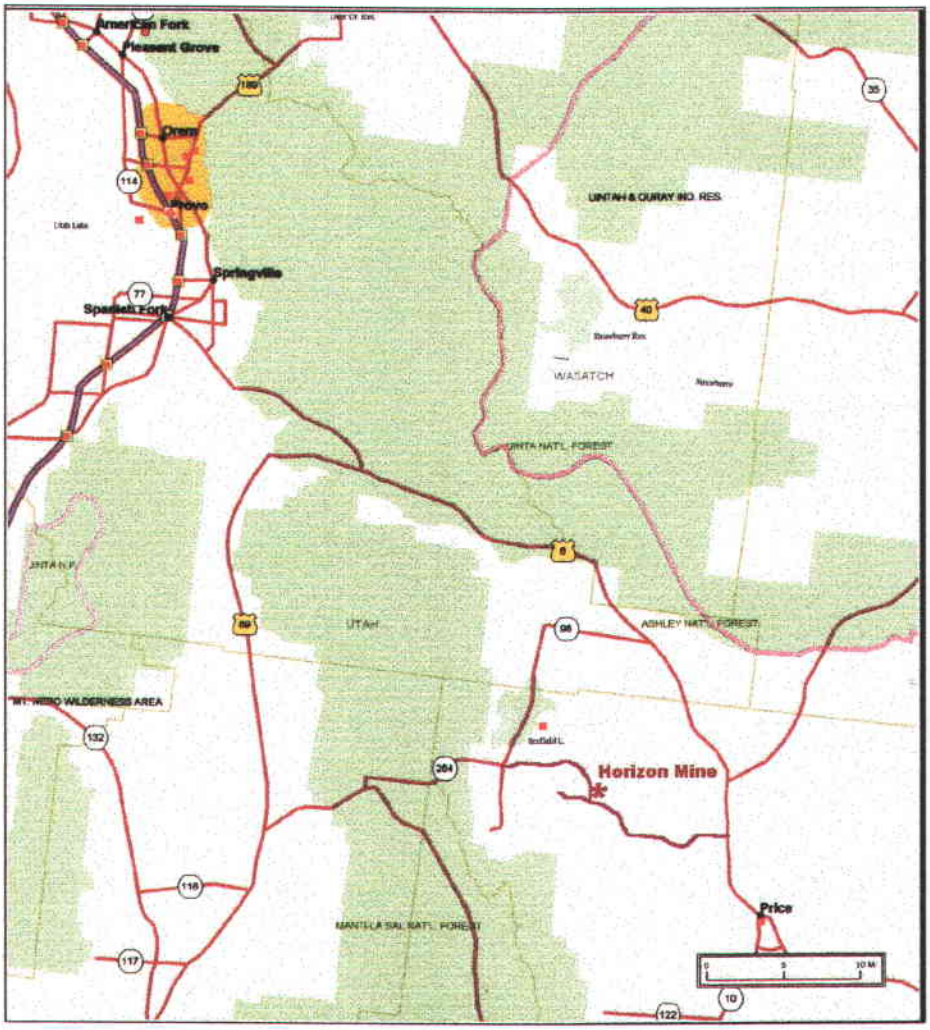
RESOURCE RECOVERY AND PROTECTION PLAN (R2P2)

Lodestar Energy Inc. submits this Resource Recovery and Protection Plan (hereinafter referred to as the R2P2) per the requirements of Title 43 Section 3482.1 (b).

This R2P2 is submitted for the Horizon Mine, located in Carbon County, Utah. The Horizon Mine includes Federal Lease U-74804 and other non-Federal lands.

This document is arranged per the requirements of Title 43 Section 3482.1, the order of the topics follows the order the requirements are listed in Title 43. At the top of each page, the requirement being addressed, and the regulatory reference, are listed.

Where appropriate, small maps are included with the text to portray the information presented. All such maps are also included in the Appendix section.



NAMES, ADDRESSES, PHONE NUMBERS OF PERSONS RESPONSIBLE

Section 3482.1 (c) (1)

The person responsible is:

David B. Miller
Lodestar Energy, Inc
HC 35 Box 370
Helper, UT 84526

(435) 637-9200

The operator is:

Lodestar Energy, Inc.
HC 35 Box 370
Helper, UT 84526

The lessee is:

Lodestar Energy, Inc
333 West Vine Street – Suite 1700
Lexington, KY 40507

The MSHA ID Number for Horizon Mine is: 42-02074

FEDERAL LEASE SERIAL NUMBERS

Section 3482.1 (c) (1)

There is one Federal Lease involved in this R2P2:

Federal Coal **Lease U-74804**: Issued to Horizon LLC on September 1, 1998
Now held by Lodestar Energy Inc. as part of its asset purchase from Horizon LLC, dated July 14, 1999.

There is no LMU associated with this lease.

This R2P2 includes the entire 1280 acres specified in the Federal Lease.

NAMES AND ADDRESSES OF OTHER COAL OWNERS

Section 3482.1 (c) (1)

The only other coal ownership within the R2P2 is controlled by Lodestar Energy Inc, and is a Private Coal Lease. The lessor is:

Hidden Splendor Resources
50 West Liberty Street, Suite 880
Reno, NV 89501

NAMES AND ADDRESSES OF SURFACE LAND OWNERS

Section 3482.1 (c) (1)

Surface land ownership within and contiguous to the R2P2 area is shown on the Map (located in the Appendix) entitled "Surface Ownership". Names and addresses of the surface owners are as follow:)

Surface owners whose property is totally or partially within the mine plan area as defined by this R2P2 are:

Hidden Splendor Resources
50 West Liberty Street, Suite 880
Reno, NV 89501

United States of America
Bureau of Land Management
2370 South 2300 West
West Valley City, Utah 84084

Steve and Pete (Jr.) Stamatakis
1111 South 450 West
Price, Utah 84501

Roy M. and Tessie K. Farley
5240 So. Highland Drive
Salt Lake City, Utah 84117

Arthur J. Anderson, Et al
4190 Fortuna Way
Salt Lake City, Utah 84117

J. Mark & James Jacobs
734 S. Cherry Drive
Orem, Utah 84057

Owners of Surface Properties which are contiguous to the R2P2 area are:

1. U P & L
   P.O. Box 899
   Salt Lake City, Utah 84110

2. Hidden Splendor Resources
   50 West Liberty Street, Suite 880

Reno, NV 89501

3. J. Mark & James Jacobs
734 S. Cherry Drive
Orem, Utah 84057

4. Agnes and Eldred E. Peirce, Jr.
3432 South 500 East
Price, Utah 84501

5. Steve and Pete (Jr.) Stamatakis
1111 South 450 West
Price, Utah 84501

6. United States of America
Bureau of Land Management
2370 South 2300 West
West Valley City, Utah 84084

7. R. L. Bird
1840 East Bryan Avenue
Salt Lake City, Utah 84108

8. Nielson Ltd.
P.O. Box 620
Huntington, Utah 84528

9. Roy M. and Tessie K. Farley
5240 So. Highland Drive
Salt Lake City, Utah 84117

10. Robert and Linda N. Jewkes
Wellington, Utah 84542

11. Luke G. and Gene S. Pappas
2030 S. Cave Hollow Way
Bountiful, Utah 84010

12. Milton A. Oman
1714 E. Millcreek Way
Salt Lake City, Utah 84106

13. Utah Division of Wildlife Resources
455 West Railroad Avenue
Price, Utah 84501

14. K.C. Jensen and Tonda Hampton

P.O. Box 957
Price, Utah 84501

15. Carbon County
Courthouse Building
Price, Utah 84501

16. Arthur J. Anderson, Et al
4190 Fortuna Way
Salt Lake City, Utah 84117

17. Utah State Fish and Game
1095 West Motor Avenue
Salt Lake City, Utah 84116

GENERAL DESCRIPTION OF GEOLOGY AND COAL RESOURCES

Section 3482.1 (c) (2)

The Horizon Mine reserves are part of the Wasatch Plateau Coal Field. Geologic information is sourced from previous mining operations, existing regional data from various sources, drilling performed on and near the property, and observation from current mine workings.

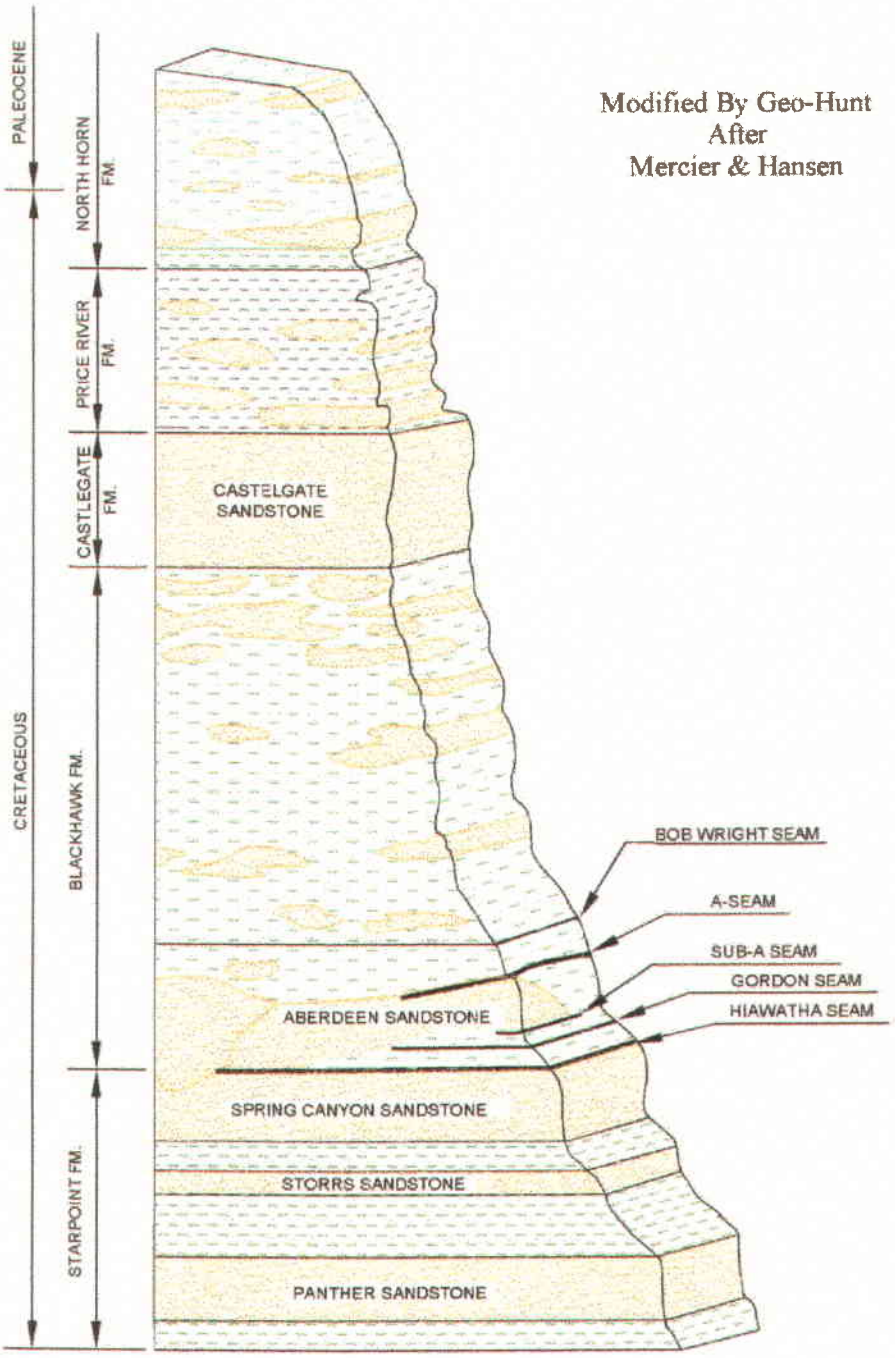
In addition to specific data on the actual coal seam, an abundance of data exists regarding the local geology, as reported by previous (approximately 10) mining operations.

Stratigraphy:

The stratigraphic units of interest are part of the Cretaceous Age Blackhawk Formation. In ascending order, the stratigraphic units relevant to this R2P2 are:

Spring Canyon Member of the Star Point Sandstone
Hiawatha Seam
Sub-A Seam
Aberdeen Sandstone
A-Seam

A stratigraphic column is provided on the next page.



Generalized Stratigraphic Column

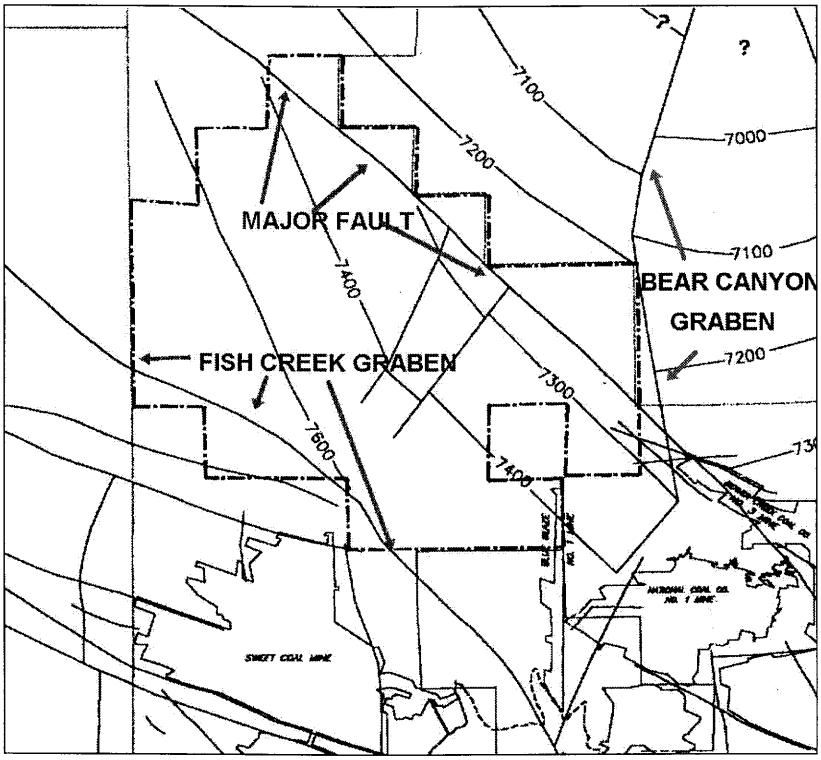
Horizon Coal Property

Geologic Structure:

The subject of this R2P2 lies near the north end of the Wasatch Plateau, a north-south feature over 60 miles in length. The northern dip is influenced by the Uinta Basin. A general geologic description follows: please refer to the Mine Permit Application for more detailed geologic information.

This area is host to several fault systems. The Fish Creek Graben, which lies on a N60W strike defines the southern boundary of the Horizon reserve. A fault running parallel to, and approximately 4500 to 5000 feet north of, the Fish Creek Graben forms the natural northern property boundary. This fault was identified as the "B-C Fault" in the Geo-Hunt Study performed in 1995: "There is no question that the B-C fault exists; it is visible on the 1:24000 scale orthophoto sheet and the mapped location is a result of following surface disturbance..." What is not known is the displacement: Geo-Hunt speculated it could be "50 to 100 feet". This matter is addressed further on page 21. The eastern boundary of the reserve is marked by proximity to the N-S striking Bear Canyon Graben. There have been several additional faults identified in previous mining, which are believed to be related to these major features.

The displacements of these fault systems is variable, ranging from 10 feet or less on the minor faults, to 100 feet or more on the major faults. The NW trending faults can also be detected on surface mapping, as they appear as linear features. Such mapping is the source of plotting the locations on the mine reserves.

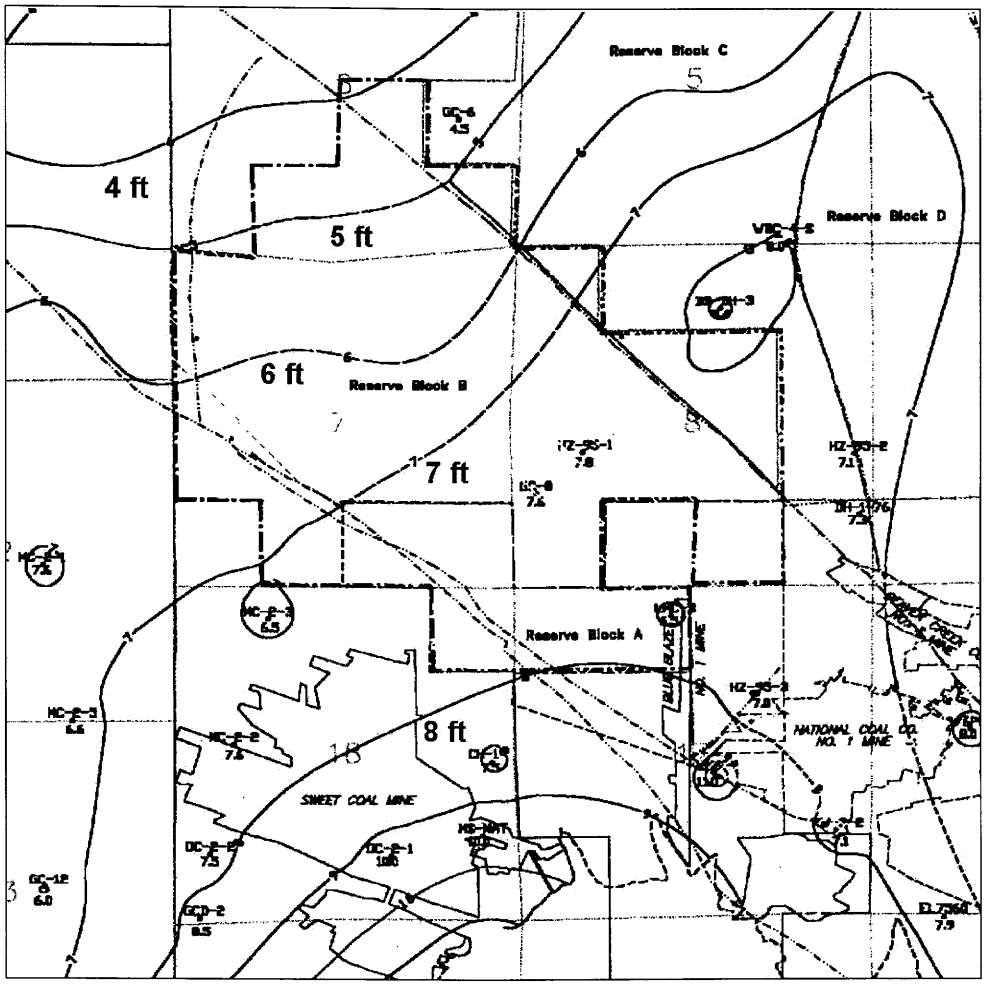


STRUCTURE MAP SHOWING MAJOR KNOWN FAULTING
(Elevation contours are Hiawatha Seam)

Coal Resources:

The two coal seams will be described below:

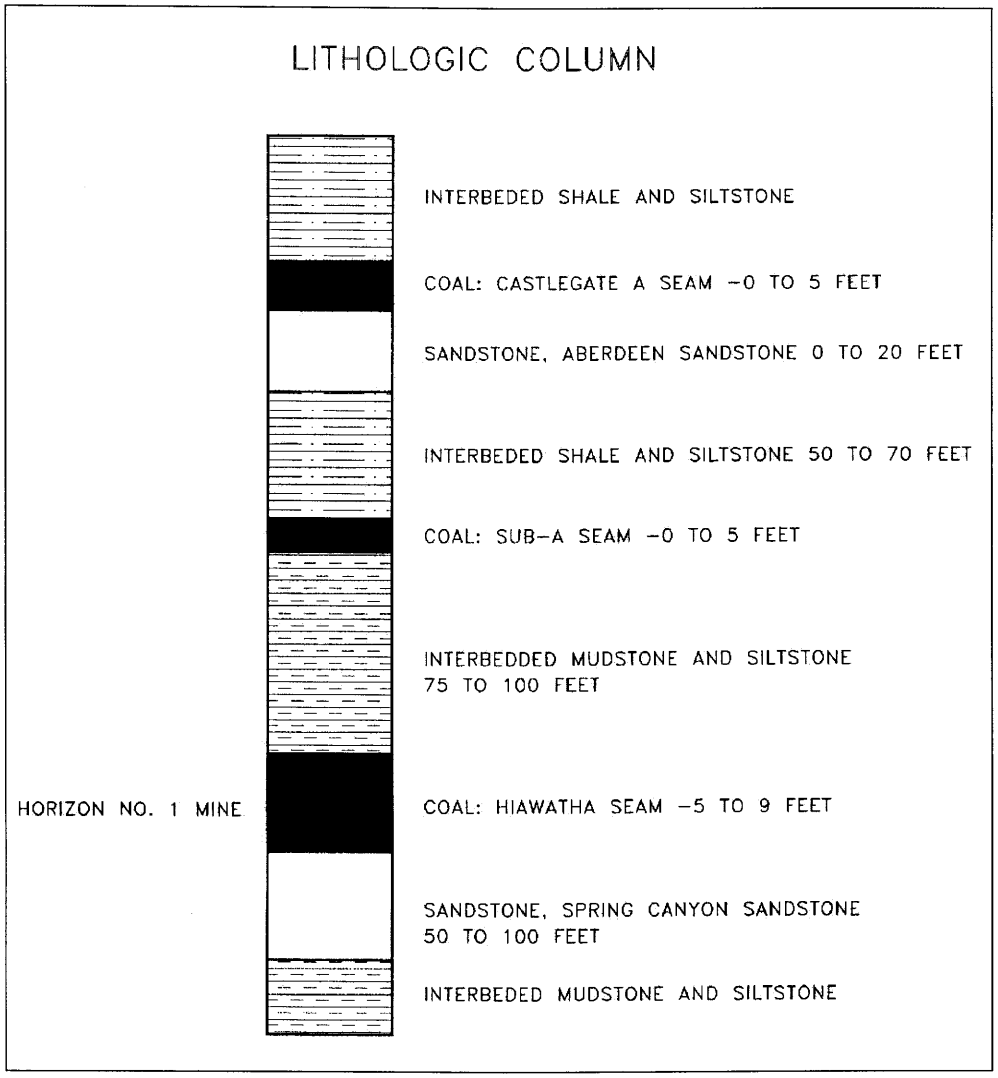
Hiawatha Seam: The Hiawatha Seam is the target seam for Horizon Mine, and as will be discussed later, is the only seam with economic potential. The seam is between 7 and 8 feet thick over the eastern half of the reserve. This height then declines by approximately 1 foot per 1500 linear feet, until the northwest corner of the reserve is believed to be less than 5 feet in total height.



THICKNESS OF THE HIAWATHA SEAM

The Hiawatha seam should typically have very little in-seam reject, such as partings. The quality should generally be good (see later section on quality).

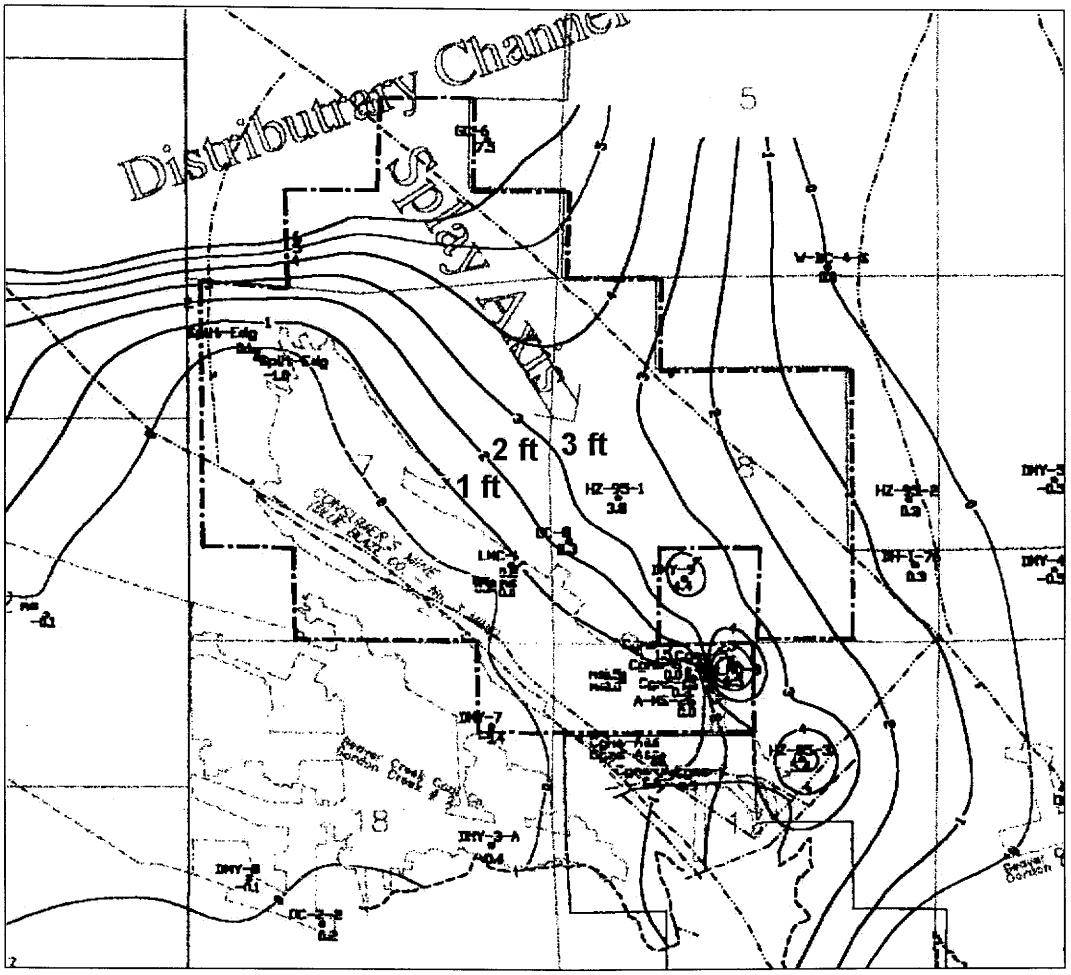
The immediate roof in the Hiawatha Seam will be comprised of mudstones, which by all indications will be thinly laminated. Intermediate and main roof will also be mudstone. The presence of weak immediate roof is likely to require leaving "head coal" to prevent out-of-seam dilution, and to assist resistance to weathering. The predominance of mudstone is depicted on the lithologic column below:



Floor in the Hiawatha Seam is expected to be predominantly sandstone, with some intermittent mudstone (but harder than the roof) or sandstone. The floor is not expected to be an obstacle to mining.

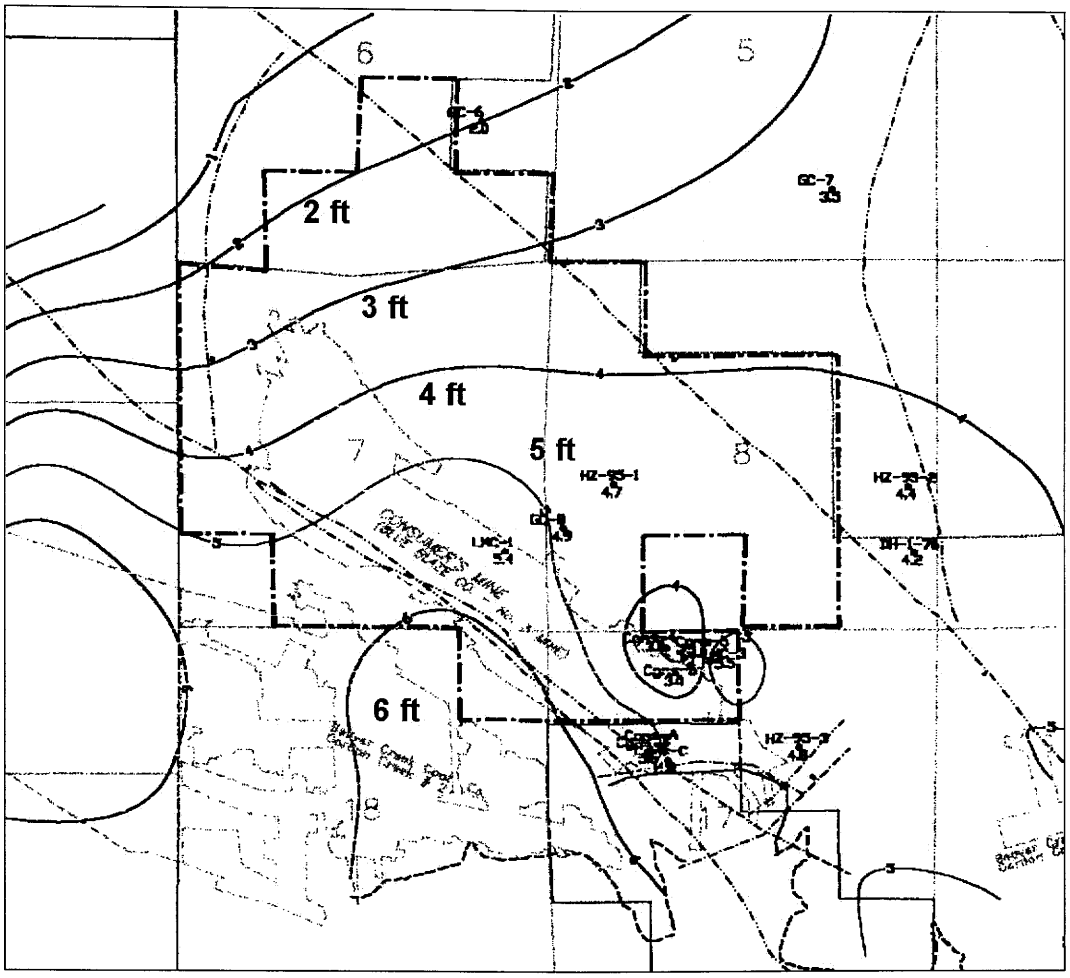
A Seam: The A-seam lies approximately 200 feet above the Hiawatha Seam. It has been mined by several operators in the past. As can be seen from the map in the appendix, the A-Seam has been extensively mined from the south and east of Horizon, as well as through the subject Federal Lease area.

Previous mining operations encountered a parting, which increases in thickness to the Northeast. Per the map below, this parting was ultimately the termination of the northern limit of Consumers Mine, which ceased at approximately a 12-15 inch parting. The parting on the unmined reserves averages over 3 feet thick. This is shown below:



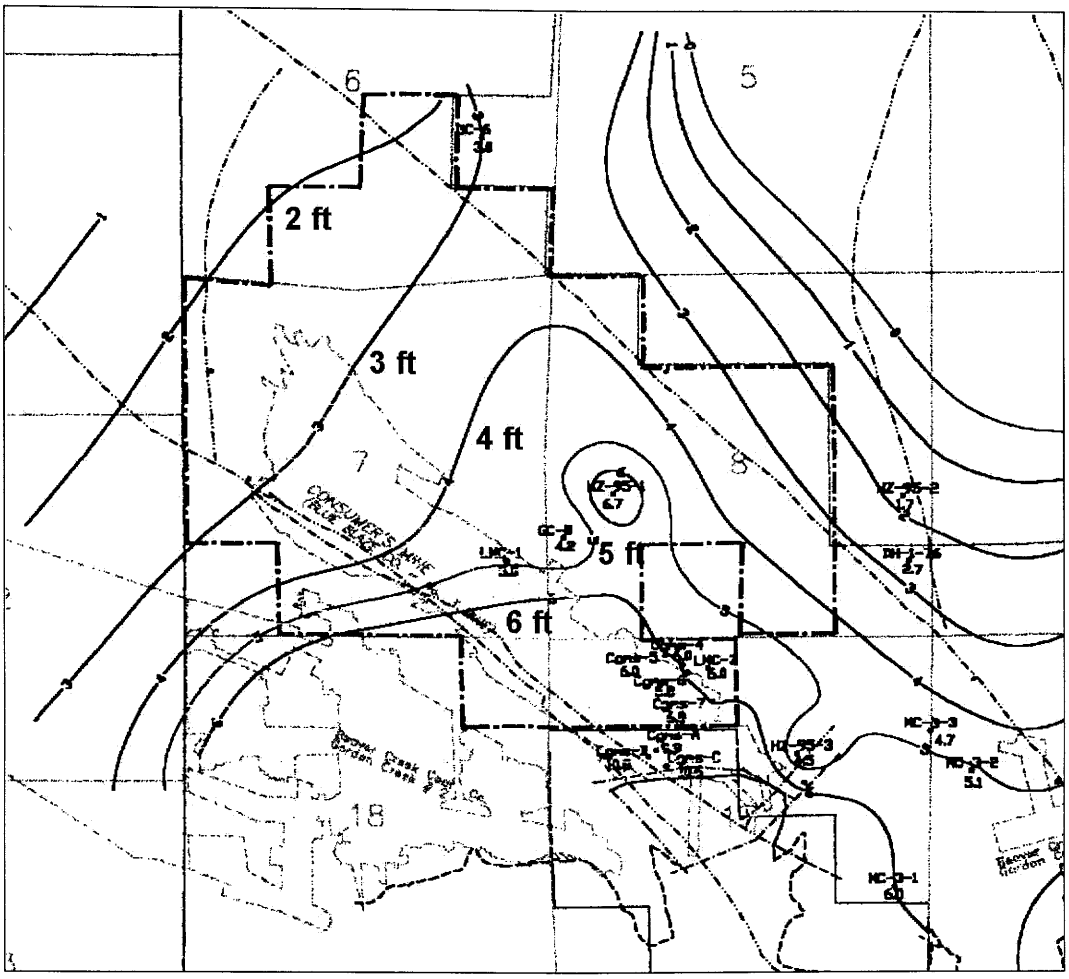
THICKNESS OF THE A-SEAM PARTING
(Note Consumers Mine Generally Stopped at Approx 1 ft Parting)

The parting divides the A-Seam into 2 splits, referred to as upper and lower. The upper split does not exceed 5 feet at any location on the reserve, and averages below 4 feet in thickness



THICKNESS OF THE UPPER SPLIT OF THE A-SEAM

Similarly, the lower split also averages below 4 feet in thickness, with only a small zone over 5 feet. This area over 5 feet in height is not accessible without developing a new portal, or driving rock slopes from below.



THICKNESS OF THE LOWER SPLIT OF THE A-SEAM

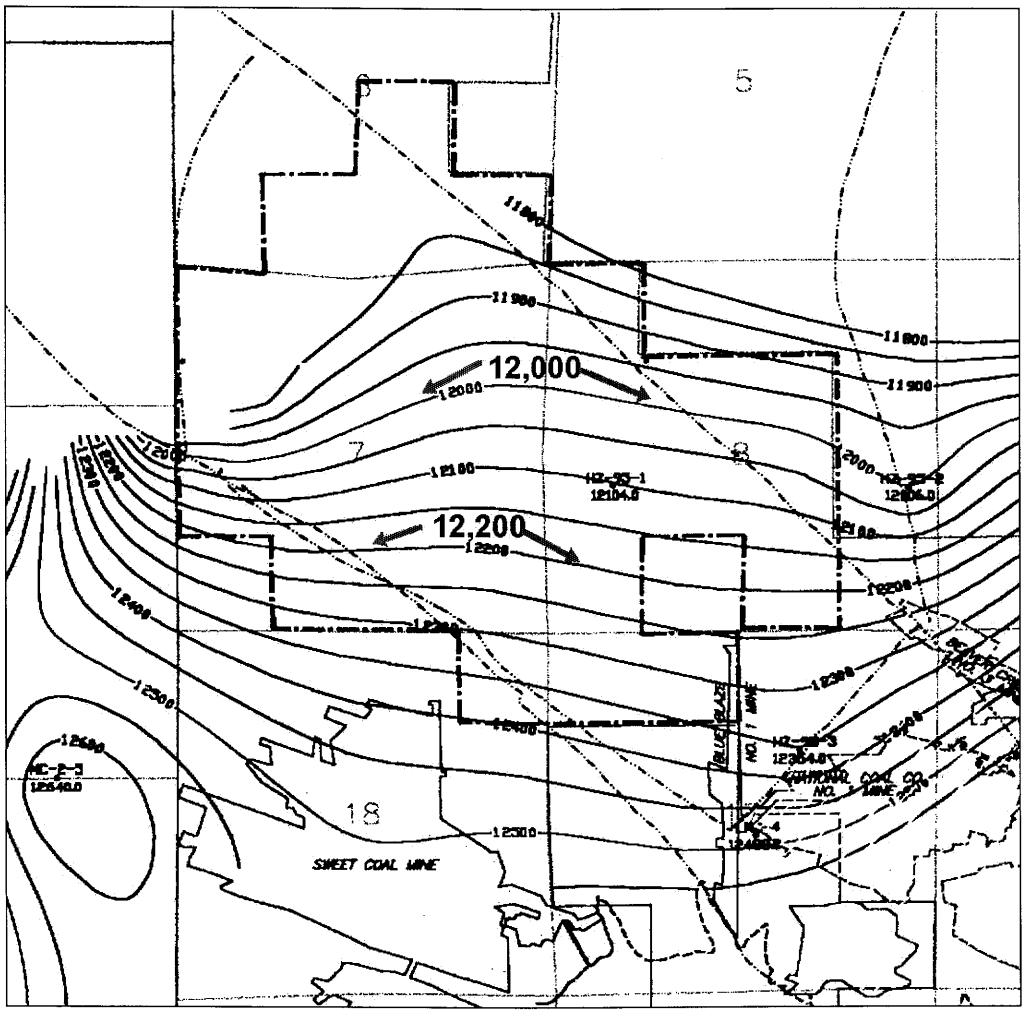
Combined, the 2 coal splits and parting average approximately 11 feet thick, consisting of 8 feet of coal split down the middle by 3 feet of rock. As this does not represent an economic resource, and neither split exists in adequate thickness to justify mining, the A-Seam does not enter into the mining plan for Horizon. The economically recoverable coal in this seam has already been mined out by previous operators: no economic resource exists in the remaining splits of the A-Seam in the R2P2-related area. Since the A-Seam is not a resource for the purposes of this R2P2, interburden is not applicable, and **no interburden maps are being provided**, per 43CFR3482.1 (c) (4) (ii).

DESCRIPTION OF MINING OPERATION

Section 3482.1 (c) (3)

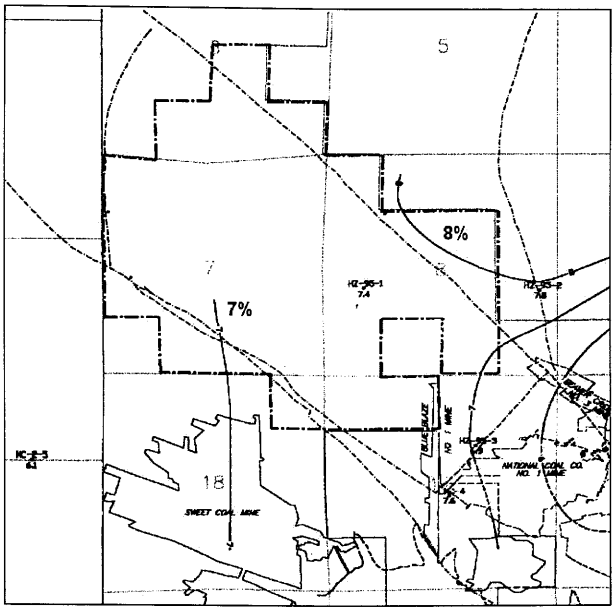
Coal Analysis [*Section 3482.1 (c) (3) (i)*]: Coal quality is depicted on the maps which follow.

BTU: In-place BTU values are estimated to range from 12,500 along the southern property line to 11,900 at the northern boundary.



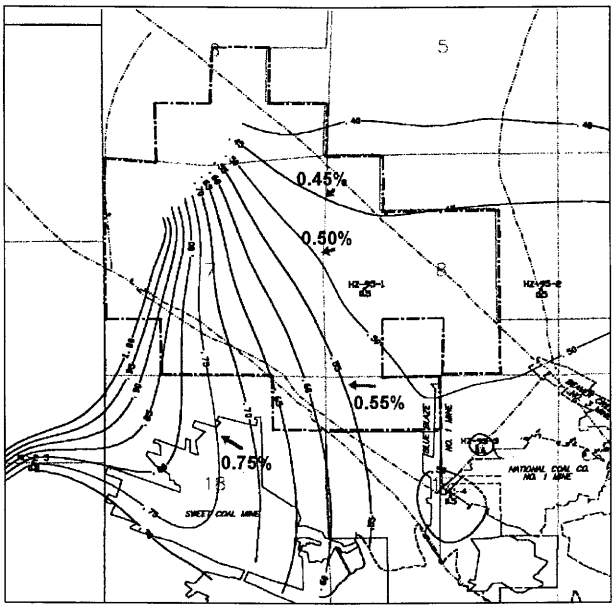
HIAWATHA SEAM BTU VALUES (as received)

Ash: Ash content (in-situ) is projected to average between 7 and 8 percent, possibly approaching 9 percent toward the north boundary.



HIAWATHA SEAM ASH VALUES

Sulphur: The sulfur content of the coal is expected to range from a low of 0.4% to a high of 0.8%, trending higher to the west.



HIAWATHA SEAM SULFUR

Typical in-place coal quality is projected as follows:

Parameter	As Received
Moisture	7.46
Ash	6.49
Volatile	40.46
Fixed Carbon	45.59
Sulfur	0.55
BTU	12,317

Coal analyses are included at the back of this report.

Methods of Mining [*Section 3482.1 (c) (3) (ii)*]: Mining of the Horizon Reserve area will be by continuous miner. Due to the small relative size of the reserve, and declining height to the north and west, it is not amenable to mining by longwall methods. First, the capital cost of a longwall system (up to $30 million) could not be recovered over the small tonnage base. Secondly, the declining height would require a forced compromise in equipment selection which would, again, lead to economic rejection of the longwall alternative. A third major factor against employing a longwall is the uncertain geology of the reserve: longwall panels must be extracted at a fixed geometry and orientation, and the numerous faulting systems expected in the mine raises the risk level of such a plan immensely.

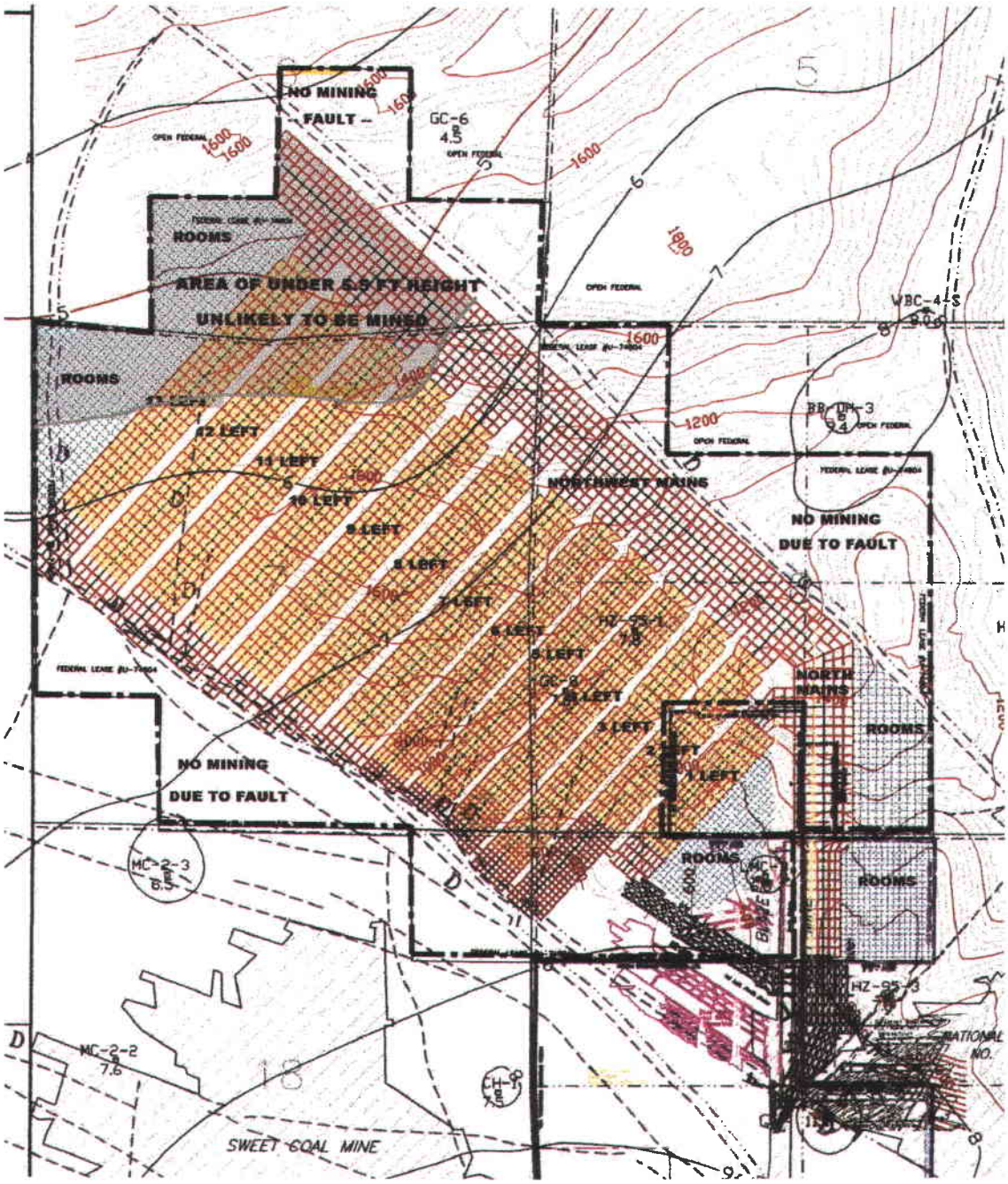
Mining Methods Described: The basic mining method to be employed is room-and-pillar continuous mining. This is the industry standard method where longwall cannot be economically employed. In addition, Horizon proposes to use, where appropriate, second-mining techniques of full and partial pillaring. The recovery of pillars will be by continuous miner, assisted by timbering, or by mobile roof supports. In addition to the continuous miner, shuttle cars will be utilized to haul coal to the feeder/breaker. Coal will be transported outside by conveyor belt.

Roof support will be achieved by mechanized double-boom roof bolters. Due to the nature of the roof, all development mining will be supported by roof bolts. Anticipated type of bolt is resin-anchored #6 or #7 rebar, with bolt lengths of 5 to 7 feet. The current Roof Control Plan is attached in the Appendix, as is the Ventilation Plan.

Mining Equipment: Equipment selected for Horizon shall be capable of mining from 8 feet of height down to just under 6 feet. Typical equipment for mining at Horizon is expected to be as follows:

Continuous Miner:	Joy 12CM or equivalent in areas with 7 ft or greater height Joy 14CM or equivalent in areas with less than 7 feet of height (A 12CM-type machine can operate in heights up to 12 feet, and as low as just over 6 feet. A 14CM-type can operate in heights between 5 feet and 10.5 feet. A 12CM is generally a more productive machine due to its higher loading rate.)
Shuttle Cars:	Joy 10 S/C or equivalent. Anticipated payloads of 7 to 10 tons, as determined by height of seam. (Payloads are determined by clearance to the roof, and by height of sideboards. The cars are capable of operating in coal seams as low as 5.5 feet.)
Bolters:	Fletcher or equivalent, double-boom electric powered, crawler or rubber tire mounted. These machines can operate in heights down to 5.5 feet.
Conveyors:	Standard MSHA-approved conveyor system, from feeder to outside, with drives/transfers as needed.
Roof Supports:	Mobile Roof Supports (Voest Alpine or Fletcher), or timbers. The MRS units can operate in 60 inches or greater of height.
Ancillary Equip:	Diesel or battery powered scoops, mantrips, tractors, etc.

Mining Sequence: The mining plan is shown on the map below:



Horizon will commence operations as a one-unit mine. This unit will continue development of the North Mains until the planned turn for Panel 1 is encountered. At that time, Panel 1 Left will be driven until it intersects with the current northwest limit of Horizon's mine works. These works will be used solely as a return air course for 1 Left, and all ensuing panels. Concurrent with its advance, 1 Left will drive rooms off to the southeast, leaving a 200 ft barrier between these rooms and pre-existing workings. Once it connects to the existing works, the mining unit in 1 Left will drop back approximately 4 crosscuts (for return, or bleeder air) and commence to second mine pillars. The rooms will not be second mined, but are driven on much smaller centers for greater initial recovery.

Once 1 Left is fully mined, the North mains will continue driving in close proximity to the projected fault on the North end of the property. Due to the possibility of encountering water, the mains will not intersect the fault. Instead, it is anticipated the fault will be located by long-hole drills operating from the Mains. It is currently planned to maintain a 100 ft safety barrier from the fault.

Given the lack of seismic work in the area, it is possible the fault either does not exist, or is not properly located on the map. Horizon Mine will drill in advance of the mining activity in the Mains, and will alter the proposed mining plan as the fault existence and location are determined. A priority for Horizon Mine will be to maximize recovery of the resource located within the lease boundaries.

North Mains will turn northwest once it nears the fault, and drive the Northwest Mains parallel to the fault. As Panel 2 Left is encountered, it will be mined in the same manner as 1 Left. The southernmost end of 2 Left will be driven to the Fish Creek Graben, and then connect to 1 Left for continuation of the Bleeder. 2 Left will then retreat mine the pillars, with Northwest Mains resuming mining when 2 Left is complete. Panels 3 Left through 13 Left will be mined in a similar manner. The Bleeder will be maintained along the southern fringe of the reserve, allowing maximum recovery of the panels. Rooms will be mined off the western side of 13 Left, similar to the rooms off of 1 Left. These rooms will be driven to the lease boundary. As the Northwest Mains advance beyond Panel 9 Left, seam height is expected to drop below 6 feet. A later section will address the treatment of these reserves.

Production Rate: Horizon Mine will produce what it can effectively and economically market. Initially, the operation will be a one-unit mine, producing approximately 30,000 tons per month, or an annual rate of 360,000 tons. As the market permits, this rate will be increased. The currently estimated production for Horizon is:

YEAR	TONNAGE
2000	420,000
2001	800,000
2002	1,000,000
2003	1,200,000
2004	1,200,000
2005	1,200,000
2006	680,000
TOTAL	**6,500,000**

Estimated Recovery Factors: Recovery at Horizon is governed by the following:

1 Overburden: The reserve averages just under 1200 feet of overburden, with localized highs of over 1600 feet. At these depths, pillar dimensions must be increased in order to maintain adequate safety factors for the mine openings. Pillars at Horizon range from a small 60 ft by 60 ft up to 100 ft X 120 ft in the highest cover areas.

2 Ventilation: It is necessary to design the ventilating entries of adequate size to remain in place for the mine's expected life. The design at Horizon has been optimized for reserve recovery: the only pillars which must be left in place are around the perimeter of the property for the Bleeder system. These pillars are also in close proximity to the Fish Creek Graben.

3. Roof Control: The Horizon Mine plan depends on reasonable roof conditions for development. Due to the poor quality of the immediate roof, it is anticipated that 6 inches of "head coal" will have to remain in place. This coal will serve as a barrier to the elements of air and water, reducing "slacking" of the overlying mudstone. The effect of leaving "head coal" is to reduce recovery by the 6 inches left behind. For example, in a 7 ft seam, leaving 6 inches reduces recovery by 7 percent. It may be necessary to leave more coal in localized areas. It may also be possible in some areas to mine rock-to-rock, for greatest recovery. The R2P2 contains the assumption that 6 inches of "head coal" must be left behind. Also, due to expected roof deterioration, the North Mains and Northwest Mains are not anticipated to be second mined.

4. Coal Quality: The in-place quality at Horizon is generally good, and should not be an impediment to marketing. There exists a threat from out-of-seam reject. In the 100,000 tons mined to-date at Horizon, 20,000 tons remain unsold due to high ash. The source of this ash was the poor roof. As with Roof Control above, Coal Quality will require 6 inches of "head coal" to be left intact. This assumption will also apply to second mining: since the top tends to "flake" and "dribble", "head coal" will also be left when pillaring.

5. Pillar Behavior: A significant portion of the overall production at Horizon will come from second mining. This method's success depends on the remaining partial pillar to support the roof until local mining is complete. Given the overburden, and poor roof, this is not something that can be taken for granted. There will be areas that cannot be second mined, and others that can only be partially mined, due to prevailing local conditions. As a result, the mine model for Horizon assumes that 50 percent of the coal targeted for second mining will actually be extracted. This compares to perhaps a 70 percent rate for a mine in better pillaring conditions.

The in-place minable Federal reserve at Horizon is estimated as follows:

Federal Lease	10,410,200 Tons

(source: 1997 study by Marshall Miller & Associates)

This tonnage is the amount of in-place coal in the Hiawatha seam between the two major NW-SE trending fault systems.

The mining model, based on the above assumptions, forecasts a recovery of 6,500,000 tons, less 250,000 tons on Private coal, leaving 6,250,000 tons to be mined from the Federal lease.

If a barrier of no second mining must be left to protect Beaver Creek, the recoverable tons on the Federal Lease drop to 5,976,000. Note: Beaver Creek is located above a portion of the mine. It may be necessary to limit recovery below Beaver Creek in order to insure no damage due to subsidence. Since the amount of overburden is relatively high in this area, approximately 1000 feet, the mine plan will assume that no barrier is needed. This topic will be addressed further prior to mining the subject area.

The above figures exclude the areas north of the northern fault, and south of the Fish Creek graben. These areas contain the following estimated tons in place:

North of northern fault	1,354,000
South of Fish Creek graben	786,900
TOTAL	2,140,900

If these tons were included in the initial total of 10,410,200 the resulting in-place tonnage on the Federal Lease would be 12,551,100 summarized as follows:

In-Place Between Faults	10,410,200	82.9% of in-place coal that can be mined
North of Fault	1,354,000	10.8% of in-place coal unmineable due to fault
South of Fault	786,900	6.3% of in-place coal unmineable due to fault
Recoverable per Mine Plan	6,250,000	49.8% to be recovered per Mine Plan

In summary, the Mine Plan projects recovery of 49.8 percent of the total tons-in-place. An additional 17.1 percent of the total tons-in-place are not economically recoverable due to their displacement from the main reserve as a result of the major fault systems.

Although the mine plan shows recovery of coal below 6 feet in height, predominantly in the Northwest portion of the reserve, current economics suggest this may not be likely. For purposes of quantifying the amount of "low-coal" tons, an area of coal under 5.5 feet of total height (equivalent to 5 feet of mining height after leaving 6-inches of head coal) is shown as a shaded area on the mine plan. This zone contains approximately 1,200,000 tons-in-place of which 700,000 are recoverable. While these tons remain in the mine plan, they are unlikely to be mined unless economics change favorably, or the initial height projections prove to be low.

Per the requirements of 43 CFR 3482.1 (c) (3) (iii) the coal reserves are summarized in the following categories:

Coal Reserve Base	12,551,100 TONS
Minable Reserve Base	10,410,200 TONS
Recoverable Coal Reserves	6,250,000 TONS
Percent Recovered of Coal Reserve Base:	49.8 %
Percent Recovered of Minable Reserve Base:	60.0 %

Typical Sketches [*Section 3482.1 (c) (4) (v) (D and E)]:* Typical sketches of the mains development pillars, and retreat sequencing, are included in the roof control plan in the Appendix.

METHOD OF ABANDONMENT

Section 3482.1 (c) (3) (iv)

At the end of the mining plan, there will be no reserves remaining at the Horizon Mine. Federal Coal lease U-74804 will be mined out.

As a result, no provision is made for protection of reserves at abandonment other than the proper sealing of the portals and reclamation of the disturbed area.

The mine portals shall be sealed per the requirements of the regulations and as specified in the Mine Permit. This process will include solid block sealing of each portal, with the required sampling/drainage pipes, and backfilling the seals from the surface.

If any additional openings not currently contemplated are permitted and installed, these openings shall also be sealed and backfilled in compliance with all requirements.

GENERAL RECLAMATION SCHEDULE

Section 3482.1 (c) (5)

A description of reclamation practices, and schedule, is included in the Appendix. As this is an underground mine, no reclamation activities will occur before closure.

For additional information, the reader is referred to the Mine Permit for the Horizon Mine.

MAXIMUM ECONOMIC RECOVERY

Section 3482.1 (c) (7)

The mine plan for Horizon Mine fully utilizes economically available technology to extract the maximum amount of coal. Second mining is employed aggressively in all areas on the reserve where feasible.

The mine plan achieves extraction of the recoverable coal. In the event either or both of the main NW trending fault systems afford an opportunity for economic crossing, then the additional coal between the fault crossing and the lease line may be accessed. This outcome is currently deemed unlikely.

There will be no economically recoverable coal left unmined at the end of the mine plan. There will be no economically recoverable coal seams above or below the proposed activity which will be effected.

The operator knows of no alternate mining method which would economically produce greater recovery of the reserve than the proposed method.

COAL QUALITY INFORMATION

The following pages contain additional coal quality information which has been obtained from previous studies of the Horizon Mine Reserves.

These studies are the 1995 Geo-Hunt report and a 1997 report by Marshall Miller & Associates.

Horizon Coal Corporation

Hiawatha Seam

Typical In-Place Coal Quality

Proximate Analysis:

		As Received	Dry Basis
Moisture		7.46	
Ash		6.49	7.01
Volatile		40.46	43.72
Fixed Carbon		45.59	49.27
Totals	100.0	100.0	100.0
Sulfur		0.55	0.59
Btu/lb		12,317	13,310
Kcal/kg		6,842	7,394
MAF Btu/lb		14,313	
MAF Kcal/kg		7,952	

Ultimate Analysis

% Moisture	8.42	
% Carbon	68.08	74.34
% Hydrogen	5.09	5.56
% Nitrogen	1.53	1.67
% Sulfur	0.55	0.60
% Ash	7.32	7.99
% Oxygen (diff)	9.01	9.84

Ash Fusion Temperatures

	Reducing °F	Oxidizing °F
Initial	2,463	2,479
Softening	2,495	2,505
Hemispherical	2,512	2,525
Fluid	2,595	2,589

Horizon Coal Corporation
Hiawatha Seam
Typical In-Place Quality

Table 2 Cont.

Sulfur forms in weight %

	As Received	Dry Basis
Pyritic	0.07	0.08
Sulfate	0.01	0.01
Organic	0.47	0.51
Total Sulfur	0.55	0.59

Ash Constituents in weight %

Silicon Oxide	61.82
Aluminum Oxide	15.44
Titanium Dioxide	0.77
Iron Oxide	3.75
Lime	2.36
Magnesia	0.93
Potassium Oxide	1.17
Sodium Oxide	0.76
Sulfur Trioxide	0.86
Phos Pentoxide	0.22
Strontium Oxide	0.14
Barium Oxide	0.05
Manganese Oxide	0.07
Undermined	10.66

Table 6
Hiawatha Seam Coal Quality (As Received Basis)

	Interval Top (ft)	Interval Bottom (ft)	Segment Thickness	Accum. Thickness	% Moisture	% Ash	% Sulfur	Btu/lb.
HZ-95-1								
C-1	1,012.70	1,013.10	0.40	0.40	8.06%	6.10%	0.58%	12,320
C-2	1,013.10	1,015.00	1.90	2.30	9.17%	5.26%	0.57%	12,450
C-3	1,015.00	1,015.40	0.40	2.70	8.81%	19.00%	0.45%	10,287
C-4	1,015.40	1,017.20	1.80	4.50	8.94%	5.24%	0.45%	12,533
C-5	1,017.20	1,018.60	1.40	5.90	10.49%	13.27%	0.38%	10,957
Core Loss CL -1	*1,018.60*	*1,020.50*	*1.90*	*7.80*	*7.20%*	*13.05%*	*0.54%*	*11,500*
Weighted Average			7.80		8.80%	9.34%	0.50%	11,852

CL-1 Used results from bottom section of HZ 95-3

HZ-95-2								
Core Loss CL-1	*1,149.50*	*1,150.50*	*1.00*	*1.00*	*8.31%*	*11.13%*	*0.50%*	*11,538*
C-1 7/6	1,150.50	1,151.60	1.10	2.10	9.11%	5.68%	0.49%	12,306
C-2 7/7	1,151.60	1,152.90	1.30	3.40	7.63%	17.38%	0.38%	10,665
Core Loss Cl-2	*1,152.90*	*1,156.60*	*3.70*	*7.10*	*8.31%*	*5.13%*	*0.50%*	*12,397*
Weighted Average			7.10		8.31%	8.31%	0.47%	11,945

Estimated Ash for Core Loss Areas Based upon Density Log

	Estimated S.G.		Calculated % Ash	MAF Btu	Average Moisture	Calculated Btu
CL-1	1.32	1.2087	11.13%	14,323	8.31%	11,538
CL-2	1.26	1.2087	5.13%	14,323	8.31%	12,397

HZ-95-3								
C-1	413.40	414.80	1.40	1.40	7.41%	4.22%	0.59%	12,768
Core Loss CL-1	*414.80*	*415.60*	*0.80*	*2.20*	*7.00%*	*18.13%*	*0.61%*	*10,851*
C-2 4/1	415.60	417.15	1.55	3.75	6.87%	4.26%	0.61%	12,940
C-3 4/2	417.15	418.30	1.15	4.90	7.57%	4.64%	0.58%	12,672
C-4 4/3	418.30	419.30	1.00	5.90	7.53%	14.10%	0.53%	11,187
C-5 4/4	419.30	420.20	0.90	6.80	6.84%	11.89%	0.56%	11,847
C-6 4/5	420.20	420.40	0.20	7.00	4.68%	50.45%	0.56%	6,895
Weight Average			7.00		7.14%	9.61%	0.58%	12,059

Estimated Ash for Core Loss Areas Based upon Density Log

	Estimated S.G.		Calculated % Ash	MAF Btu	Average Moisture	Calculated Btu
CL-1	1.39	1.2087	18.13%	14,494	7.00%	10,851

KTK-97-1								
Report No. 18621.1			7.70	7.70	4.50%	3.50%	0.41%	12,971
Report No. 18624.2			7.70	7.70	6.76%	3.84%	0.51%	12,581
Average			7.70		5.63%	3.67%	0.46%	12,776

		Thickness		% Moisture	% Ash	% Sulfur	Btu/lb.
Composite		7.4		7.46%	7.68%	0.50%	12,164

Supplemental Coal Quality Information

Additional coal quality information was recovered from the USGS database in Utah. That database contained coal analyses from mines that had previously operated in the Hiawatha seam adjacent to the proposed HCC mine. These mines included the National Mine and the Sweet Mine. The coal samples for this database were not identified as to the source or type but are assumed to be a combination of run-of-mine belt samples, channel samples and stockpile samples. The information demonstrates that the mines in the Hiawatha seam have previously produced a salable product with an average as-received quality of 12,000+ Btu/lb and an ash content of less than 8.0%. This information was compiled and is displayed in the following table.

Table 7
Coal Quality Data for the Hiawatha Coal Seam
Jump Creek Quadrangle, Carbon County, Utah

Sample ID	% Moisture	% Ash	% Sulfur	Btu/Lb.	Mine
JPC-A015	6.60	6.50	0.50	12,190	NATIONAL
JPC-A016	6.60	6.40	0.60	12,200	NATIONAL
JPC-A017	8.10	6.20	0.60	12,280	NATIONAL
JPC-A018	4.80	7.40	0.40	12,650	NATIONAL
JPC-A019	5.27	6.79	0.60	13,078	NATIONAL
JPC-A020	5.30	6.80	0.60	13,078	NATIONAL
JPC-A025	7.80	4.90	0.50	12,490	SWEET
JPC-A026	6.10	4.60	0.60	12,850	SWEET
JPC-A027	5.60	4.70	0.50	12,750	SWEET
JPC-A028	5.40	7.40	0.50	12,440	SWEET
JPC-A029	4.60	6.50	0.70	12,730	SWEET
JPC-A030	8.70	7.10	0.50	11,590	SWEET
JPC-A031	5.80	5.70	0.60	12,510	SWEET
JPC-A032	11.70	7.40	0.60	10,960	SWEET
JPC-A033	11.60	6.40	0.50	10,830	SWEET
JPC-A034	4.20	5.70	0.50	12,540	SWEET
JPC-A035	5.80	6.10	0.60	12,590	SWEET
JPC-A036	9.90	2.90		12,187	SWEET
JPC-A037	10.10	3.40		11,820	SWEET
JPC-A038	11.10	7.40		11,301	SWEET
JPC-A039	6.40	7.75		12,000	SWEET
JPC-A040	6.80	9.30		12,000	SWEET
JPC-A041	6.70	8.20		12,570	SWEET
JPC-A042	9.10	7.80	0.52	11,789	SWEET
JPC-A043	7.98	5.60	0.41	12,440	SWEET
JPC-A044	6.97	10.40		11,190	SWEET
JPC-A045	5.20	6.80		12,578	SWEET
JPC-A046	7.50	11.10		11,715	SWEET
JPC-A047	8.40	7.80		11,961	SWEET
JPC-A048	7.70	11.50		11,564	SWEET
JPC-A106	6.10	5.60	0.60	12,660	NATIONAL
JPC-A009	8.10	4.80	0.50	12,160	SWEET
JPC-A012	6.50	6.10	0.50	12,333	NATIONAL
Average	7.23	6.76	0.54	12,183	

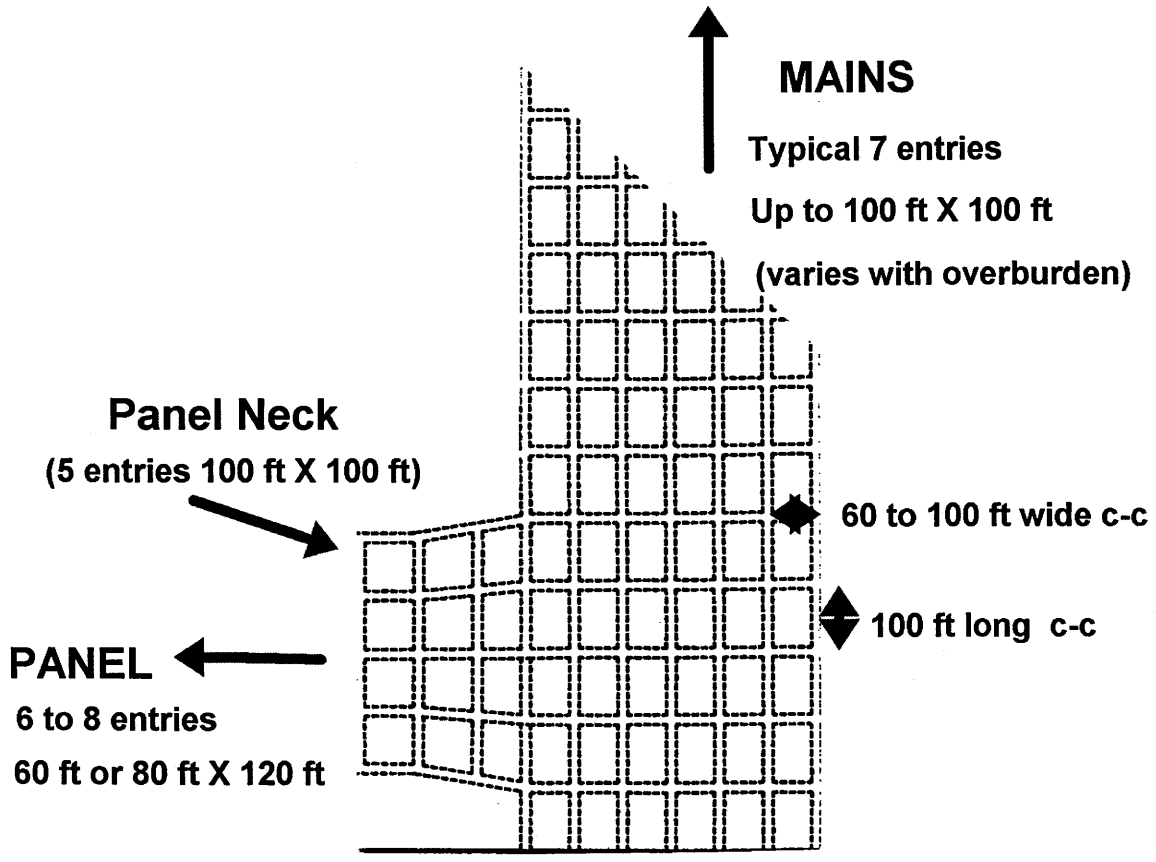
Data Source: UGMS Monograph Series, No. 3, 1972, Doelling, H. H.

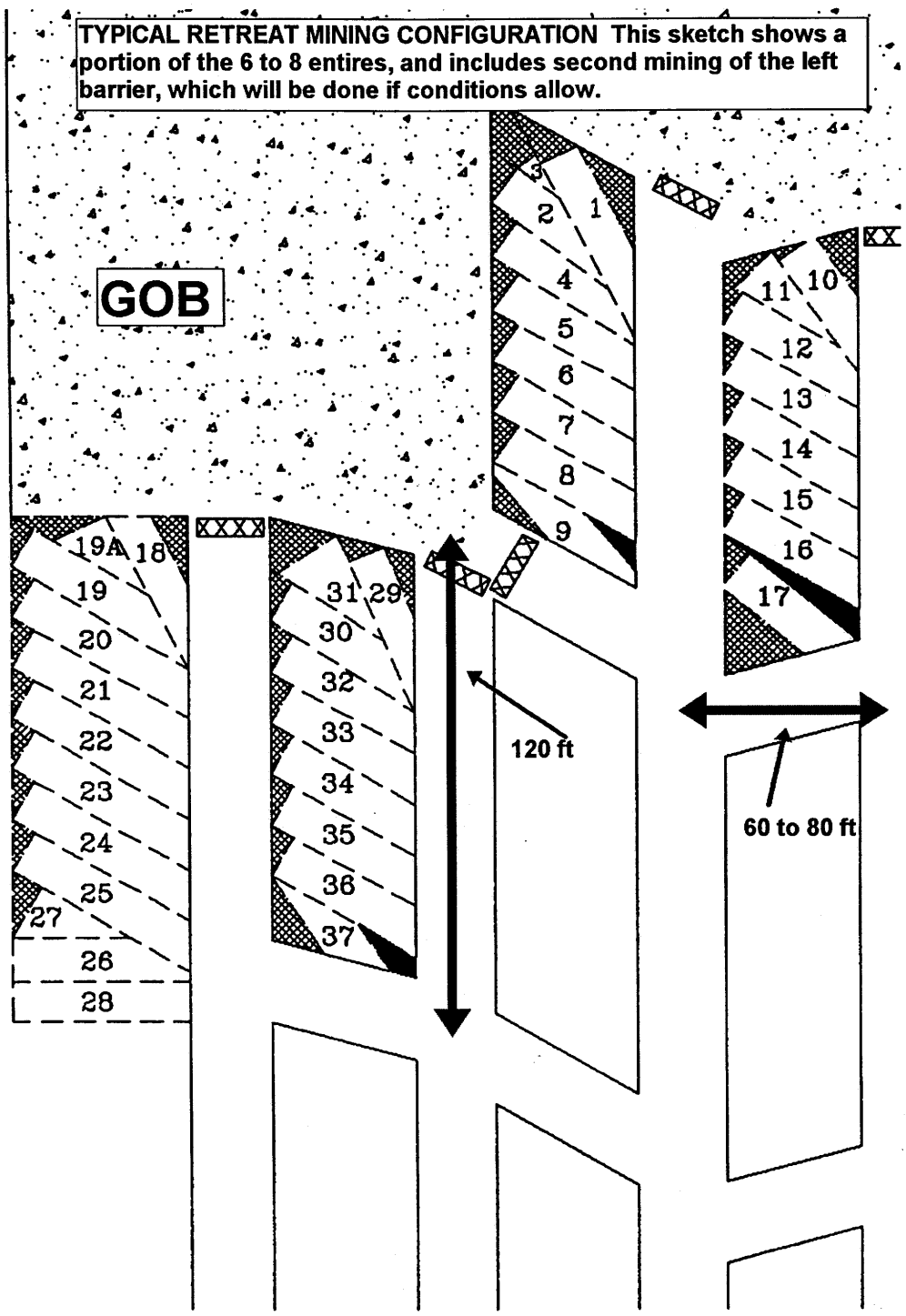
MSHA PLANS AND SKETCHES

Typical sketches of Mains driveage and Panel recovery are included, per 3482.1 (c) (4) (v).

The current MSHA approved Roof Control Plan and Ventilation Plan are also included in this section, per 3482.1 (c) (6). These plans will be modified and replaced once the Horizon Mine becomes active. At that time, the updated plans will be forwarded to BLM for inclusion in this document.

TYPICAL LAYOUT OF MAINS AND PANEL NECKS




TYPICAL RETREAT MINING CONFIGURATION This sketch shows a portion of the 6 to 8 entires, and includes second mining of the left barrier, which will be done if conditions allow.
GOB
3
2
1
4
5
6
7
8
9
11
10
12
13
14
15
16
17
19A
18
19
20
21
22
23
24
25
27
26
28
31
29
30
32
33
34
35
36
37
120 ft
60 to 80 ft

HORIZON COAL CORPORATION
P.O. Box 599
Helper. Utah 84526
(801) 472 -3994 Fax (801) 472-3980

September 17, 1997

Mr. John A. Kuzar; Dist Mgr.
MSHA, CMH&S District 9
P.O. Box 225367, DFC
Denver, CO 80225-0367

Re: Horizon Mine 42 - 02074
Roof Control Plan

Dear Mr. Kuzar;

Enclosed is a revised Roof Control Plan addressing the issues raised in the rejection letter written September 12, 1997; as well as, a review conducted in your office on September 16, 1997.

Please call if there are questions or if I can be of further assistance.

Sincerely,

John M. Walters

B. AUTOMATED TEMPORARY ROOF SUPPORT (ATRS) SAFETY PRECAUTIONS

1.

Roof Bolter Manufacturer	Model Number	Serial Number	Minimum Load Carrying Capacity
Fletcher	DDM 13	84058	33,750 lb.
Fletcher	HDDR 113	79006	53,000 lb.
Ingersol Rand	TD 12 - 4	21779	33,750 lb.

2. A registered professional engineer shall certify that each ATRS is capable of supporting the above minimum load carrying capacities. The certification shall be made available to an authorized representative of the secretary and representative of the miners.

3. All roof bolting machines operating in a working section shall be equipped with an approved ATRS system. If this approved ATRS system becomes mechanically disabled, the bolting machine shall not be used until the ATRS is repaired.

4. Non ATRS equipped machines may be used on the working section to bolt ribs, drill core holes or other non roof support functions after the roof has been permanently supported with the ATRS equipped bolter.

5. The ATRS System shall be placed firmly against the roof not more than 5.5 feet inby the last row of permanent supports for T-Bar machines or 4 feet for ring type machines, before any person proceeds inby permanent support.

6. Each bolter shall have two roof jacks to be used in the event that the ATRS system is not capable of properly protecting miners in the area being bolted. The roof jacks shall be kept at the section transformer where they will be readily available for any roof control problems occurring on the section.

C. Safety Precautions For Bolting

1. The installed torque of mechanical roof bolts shall be between 130 and 160 foot pounds. Each bolter installing any type of roof bolt will be equipped with a torque wrench to check for proper anchorage of the bolt.

2. In each active working place where mechanical roof bolts are installed, at least one roof bolt hole shall be drilled to a depth of at least 12 inches above the anchorage horizon of the bolts being used to determine the nature of the strata. These test holes shall be installed once each full cut but in no case more than every 20 feet. The hole shall be either left open for examination or a roof bolt may be installed and tightened provided adequate anchorage is obtained. No test holes shall be required for fully grouted resin bolts.

3. On mantrip and supply haulageways, all crossbars or beams shall be installed with some means of support that will prevent the beam or crossbar from falling in the event the supporting legs are accidentally dislodged. This supplemental support shall be provided within 24 hours from the time of the installation of the crossbars or beams. If roof bolts are used as the method to support the crossbar or beam the beam need not be treated per 30 CFR 75.204(c)(4).

4. Where the mine ribs exhibit sloughing and present a safety hazard, the ribs will be stabilized with rib bolts used in conjunction with rib boards, metal straps, wire roof mats, steel roof mats, or other devices to help contain rib sloughage. A row of posts may also be used in conjunction with lagging, other posts, steel mats or other devices which will help to contain the sloughage behind the row of posts. In those areas of the mine that are inactive, such rib stabilization shall be limited to the roadway or places that persons normally work or travel on an as needed basis.

5. When an area of unsupported roof exists that may be accessed by two or more entrances, the end of permanent roof support in those entrances shall be posted with a readily visible warning, or a physical barrier shall be installed to impede travel beyond permanent support even though roof supports are being installed.

6. Roof bolts will be installed during the normal mining cycle or no later than four hours from the beginning of the next production shift except when extraordinary circumstances occur such as mechanical failure or unintentional fan stoppages.

7. In isolated instances where one bearing plate has become loose, wedges may be used to tighten the plate.

8. Resin used for bolting will be stored in accordance with the manufacturers recommendations.

D. Mine Design

1. Sight lines or equally effective means shall be established to assure the mining projections in entries, rooms, crosscuts and pillar splits are followed.

Entry Width	20' Max.	Centers	50' - 150' Max.
Crosscut Width	20' Max.	Centers	50' - 200' Max.

The initial mine projections of the main line development utilize 70 foot by 100 foot centers for entries and crosscuts. These conservative dimensions will be utilized initially for the main line development where the cover will be less than 1,000 feet. Smaller blocks will be utilized infrequently where the initial slope development is occurring and the cover is shallow. As the mains are developed, evaluation of the roof control for panels and pillaring will be made. The results of the evaluation will be incorporated into future amendments to this plan.

2. Side cuts shall be started only in areas that are supported with permanent roof supports. Roof bolts will be within 4 feet of the rib prior to starting the sidecut.

3. During development, except where old workings are involved, mine openings shall not be holed through into unsupported areas. When a mine opening holes through into a permanently supported entry, room, or crosscut, no work shall be done in or inby such intersection until the entire exposed area inby permanent supports in the newly created opening is supported with permanent roof supports on not more than 4-foot centers. The face inby the breakthrough may be accessed by staying at least two rows of bolts from the breakthrough when passing the newly created intersection.

4. At all drift openings used by miners to access the mine, the operator has installed a 8.5 high by 18 foot wide reinforced concrete boxes over all portals. The boxes vary in length from 70 to 120 feet long and extend far enough from the drift to deflect or stop rocks that could fall into the travelway.

5. When mining approaches within 150 feet of outcrop, known burns or known faults, the operator will add steel roof mats and/or use a five bolt pattern to enhance the roof support. If additional support is necessary, longer bolts, roof trusses, cribs, crossbars, posts or any of the other methods described in this plan will be added to the area.

6. Outby pillars will be split only after site specific approval from the MSHA District Manager has been obtained.

7. There are no known bodies of water or impoundments above the proposed mine. The location of water contained within the old Blue Blaze Mine is shown on the mine map. Precautionary drilling in advance of mining as required by 30 CFR 75.388 will be done.

E. Support Materials

1. All roof bolting material shall be manufactured and tested in compliance with ASTM F432-88 and the manufacturer's recommendations. A copy of the recommendations will be available at the mine office for interested persons.

A. Mechanical Roof Bolts - Supplemental Support Only

1. Minimum Length	- 60"
2. Diameter	- 5/8"
3. Type Steel	- Grade 55 or 75
4. Type Thread	- 3 3/4" minimum length, Cut or Rolled
5. Head type	- Standard Square
6. Head Dimensions	- 1 1/8" Square, 5/8" High
7. Flange Dimension	- 1 1/2" Minimum Diameter
8. Hole Diameter	- 1 3/8" + or- 0.030"
9. Installed Torque	- 130 - 160 ft-lb

10. Manufacturer	Designation **
Excel- Birmingham Bolt Co....	B, E or UB
Jennmar / Mikco	M
Pattin Manufacturing	D

B. Resin Grouted Rods

1. Minimum Length	- 60"
2. Diameter	- 5/8" (# 5 Rebar); 3/4" (# 6 Rebar); 7/8" (# 7 Rebar)
3. Type Steel	- Grade 60
4. Head type	- Standard Square
5. Head Dimensions	- 1 1/8" Square, 5/8" High
6. Flange Dimension	- 1 1/2" Minimum Diameter
7. Maximum Hole Depth	- 1" Longer Than Bolt Length
8. Hole Diameter	- 5/8" rod = 0.0875" + or- 0.030" 3/4" rod = 1.000" + or- 0.030" - 7/8" rod = 1.125" + or- 0.030"

9. Manufacturer	Designation **
Birmingham Bolt Co....	B , E or UB
Jenmar / Mikco	M
Pattin Manufacturing	D
Rocky Mountain Bolt Co..	R

C. Bearing Plates

1. Dimensions -	6" by 6" minimum
2. Shape -	Donut, Ribbed, Dome, or Flat
3. Center Hole Size -	1" for # 6 Rebar 1 1/8" for # 7 Rebar 13/16" for 5/8" Mechanical Bolt
4. Thickness -	1/4" , 3/16" , or 3/8"

5. Manufacturer	Designation **
Birmingham Bolt Co..	B, E or UB
Jenmar / Mikco	M
Pattin Manufacturing	D
Rocky Mountain Bolt Co.	R

D. Anchorage Unit

1. Conventional Bolt
   a. Type - Expansion Shell, 2 or 4 leaf bail
   b. Hole Diameter - 1.375" (1 3/8") + or- 0.030"
   c. Drilling Method - Rotary or Rotary Percussion
   d. Dust Control - Vacuum Dust Collection or Water
   e. Installed Torque - 130 - 160 ft-lb
   f.

Manufacturer	Designation **
Birmingham Bolt Co.	B or UB
Jennmar / Mikco	M
Pattin Manufacturing	D

2. Resin Bolt
   a. Type - Polyester Resin
   b. Drilling Method - Rotary or Rotary Percussion
   c. Dust Control - Vacuum Dust Collection or Water
   d.

Manufacturer	Designation	
	#6 Bolt	#7 Bolt
Celtite, Inc.	22 mm Series	25 mm Series
DuPont	Fasloc A	Fasloc
Sandvic		

NOTE: Outdated resin shall be removed from the underground areas of the mine.

E. Materials Used in Conjunction With Roof Bolts
1. Steel Roof Mats
2. Steel Half Header
3. Flat Steel Bearing Plates
4. J - Channel
5. Wire Roof Mats
6. Chain Link or Wire Mesh

F. Roof Support Materials - Temporary and Supplemental
1. Crib Block - Wood: Shape = Flat with Parallel Sides.
   Size = Length 30" Minimum, Various X-C
2. Concrete - Blocks = Length 22" Minimum, Various X-C
   Donuts = Dia. 22" Minimum, Various X-C
3. VYC Cribs - Various dimensions

** Designation shall be in accordance with the manufacturer's recommendations. A copy of the recommendations will be available at the mine office for interested persons.

F. SAFETY PRECAUTIONS FOR OPERATING REMOTE CONTROLLED MINERS

1. At all times during mining and place change cycles, all persons shall be located under permanent roof support so that no portion of their bodies are exposed to sudden movement of any mining equipment or pinch points. Such persons shall be in clear view of other machine operators.

2. When the miner is being operated using the remote control, the operator shall position himself in a safe position where he can be seen by the shuttle car operators. An adjacent crosscut which is permanently supported may be used.

3. No person shall be allowed inby the next to last row of permanent supports while coal is being cut, mined or loaded. The shuttle car operator, while in the cab, may advance up to the last row of bolts.

4. If the miner breaks down inby permanent roof supports, the unsupported area shall be supported with permanent supports in accordance with this plan up to the tail of the miner. Temporary supports shall be installed on five foot centers to 4 feet inby the area of the miner where the work must be performed. Temporary supports shall be removed using remote means.

5. During both pillar splitting and development mining, the maximum depth of cut shall be 20 feet.

6. A reference mark will be placed on the miner to ensure that the length of the cut remains within the allowable limits.

FIGURES

A-1 Standard Cut Sequence

A-2 Extended Cut Sequence

A-3 Roof Bolt Installation Sequence

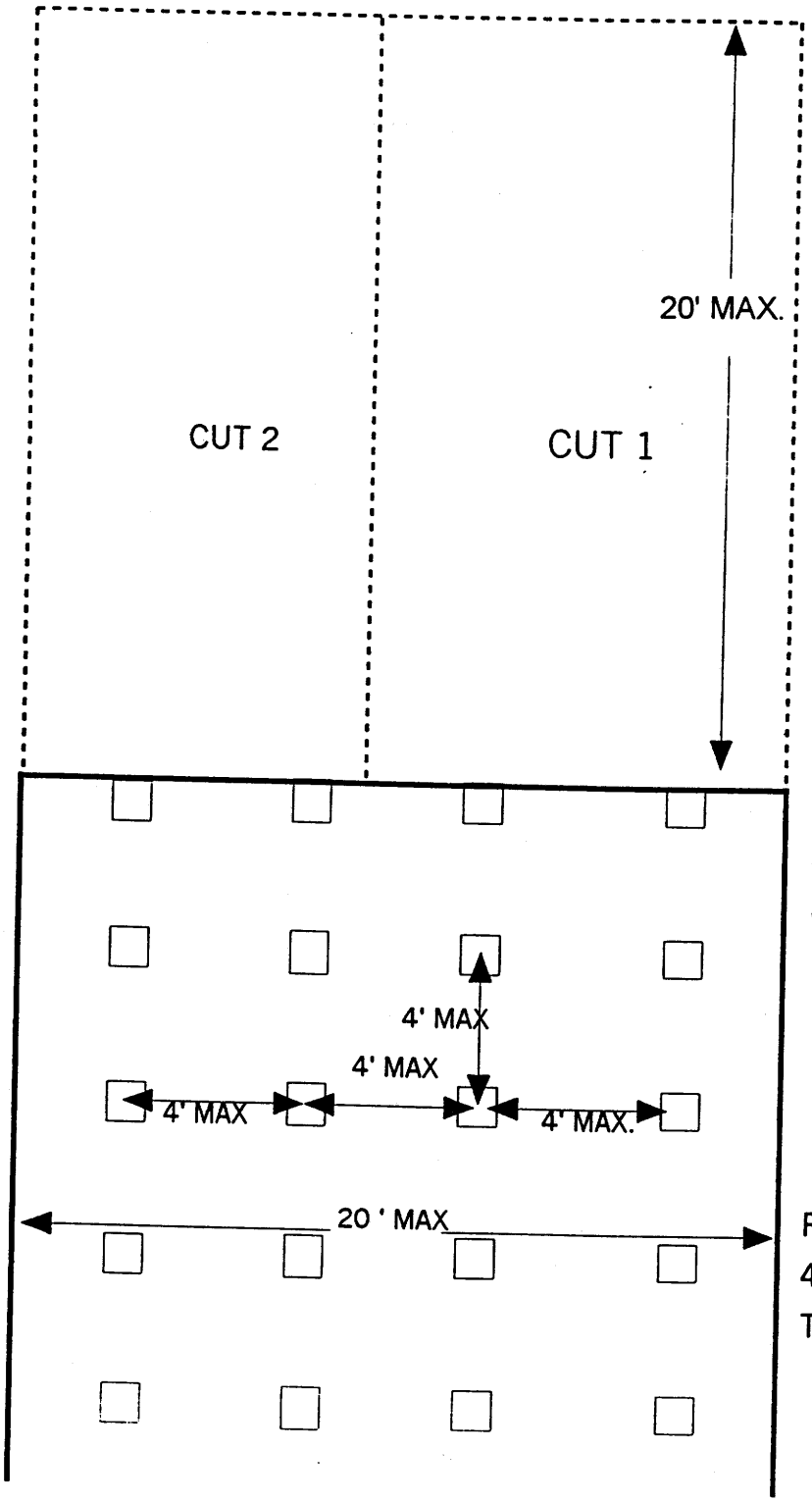
A-4 Three Way Intersection

A-5 Entry Configuration

A-6 Columnar Section of Rock Types

A-7 Disabled Miner Recovery

FIGURE 1 ROOF BOLTING PATTERN A-1



FOR USE WITH MANUAL OR REMOTE CONTROLLED MINER.

The first cut may be taken on the right or left side depending on the ventilation setup.

DEPTH OF CUT NOT TO EXCEED 20 FEET INBY LAST ROW OF BOLTS.

NO PERSON SHALL PROCEED BEYOND PERMANENTLY SUPPORTED ROOF.

Five foot long roof bolts on a four foot by four foot pattern will be used.

ROOF BOLTS SHALL BE WITHIN 4 FEET OF THE RIB PRIOR TO BEGINNING SIDE CUTS.

□ -ROOF BOLT

SCALE 1" = 5' 1"

FULL ROOF BOLTING PLAN

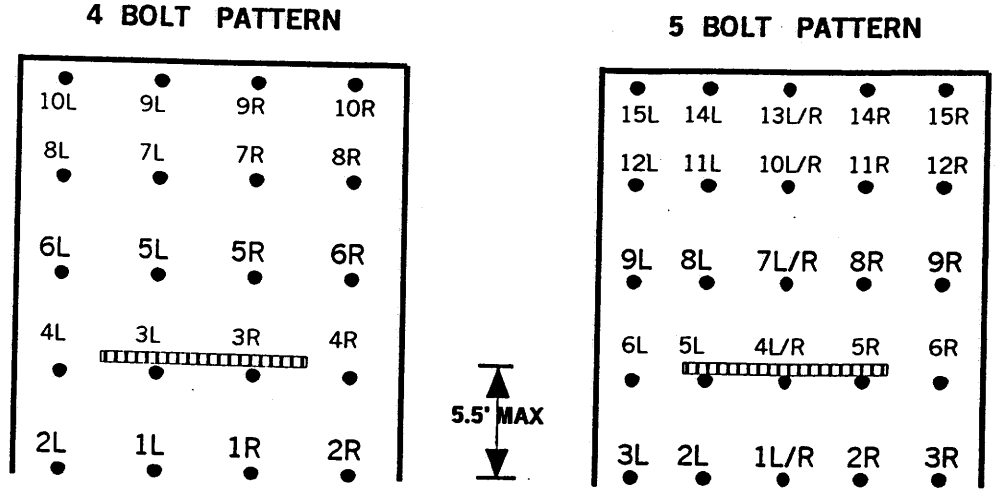
EXTENDED CUT SEQUENCE

THIS PAGE RESERVED FOR FUTURE AMMENDMENT
TO ALLOW THE USE OF EXTENDED CUTS UP TO 40 FEET.

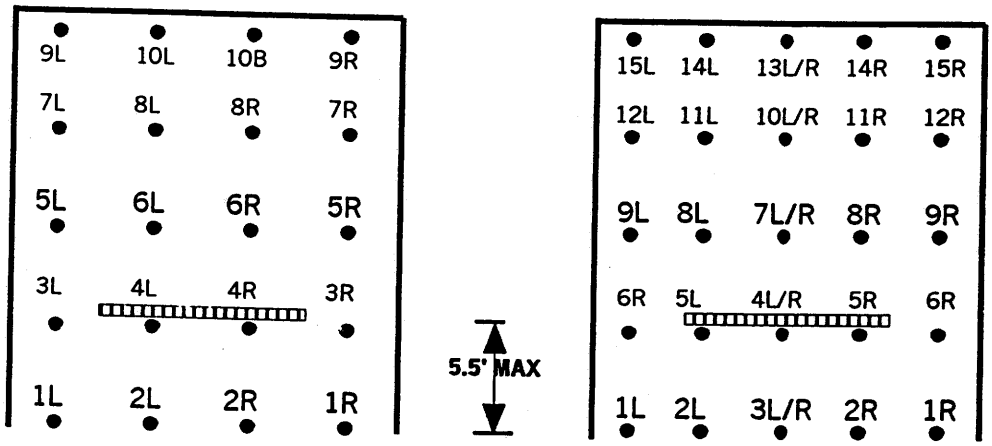
SCALE 1 INCH = 10 FEET

FIGURE 3 ROOF BOLT INSTALLATION SEQUENCE

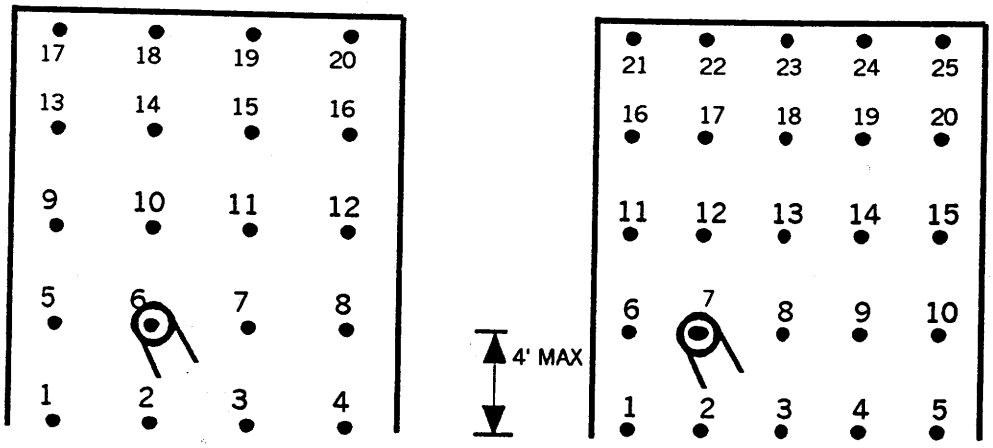
DOUBLE BOOM BOLTER - INSIDE CONTROLS



DOUBLE BOOM BOLTER - OUTSIDE CONTROLS



SINGLE BOOM BOLTER - LEFT SIDE CONTROLS



ATRS SETBACK = 5.5 FEET FOR BOTH T-BAR BOLTERS

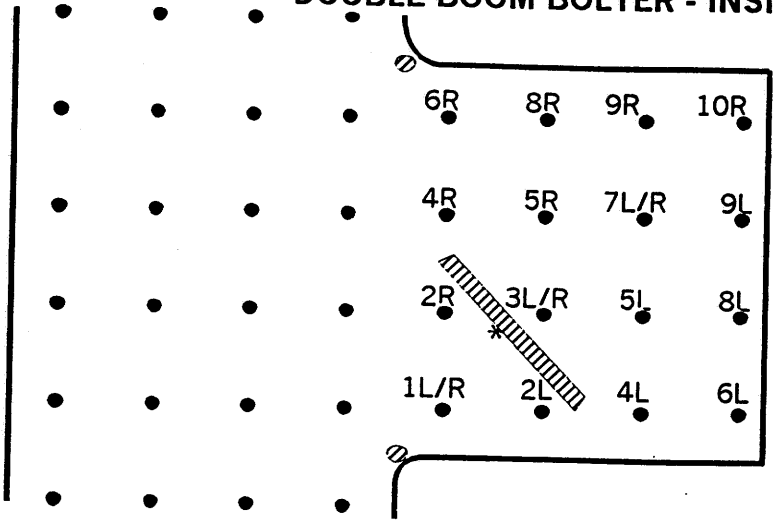
ATRS SETBACK = 4.0 FEET FOR RING STYLE BOLTER

1"

Scale 1" = 10 feet

FIGURE 4 INTERSECTION BOLT INSTALLATION SEQUENCE

DOUBLE BOOM BOLTER - INSIDE CONTROLS

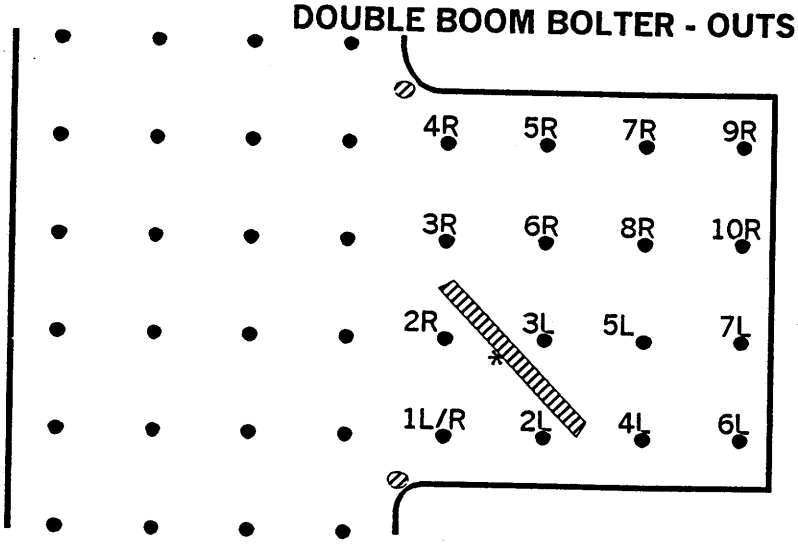


⊘ ADDITIONAL BOLTS WILL BE INSTALLED TO MAINTAIN SPACING WHEN CORNERS ARE ROUNDED

* ATRS SETBACK = 5.5 FEET FOR BOTH T-BAR BOLTERS

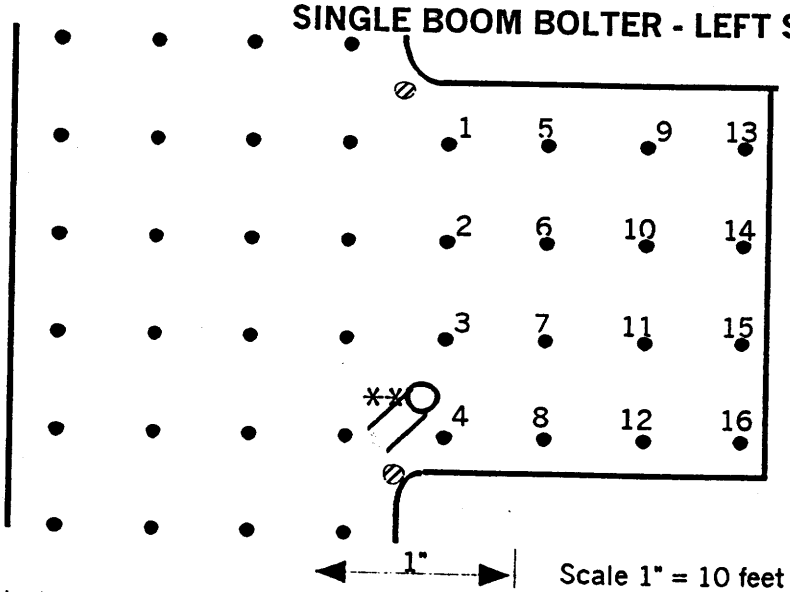
** ATRS SETBACK = 4.0 FEET FOR RING STYLE BOLTER

DOUBLE BOOM BOLTER - OUTSIDE CONTROLS



Crosscuts may be turned right or left. The depth of cut will be adjusted to ensure that the miner operator is under permanent roof support at all times.

SINGLE BOOM BOLTER - LEFT SIDE CONTROLS



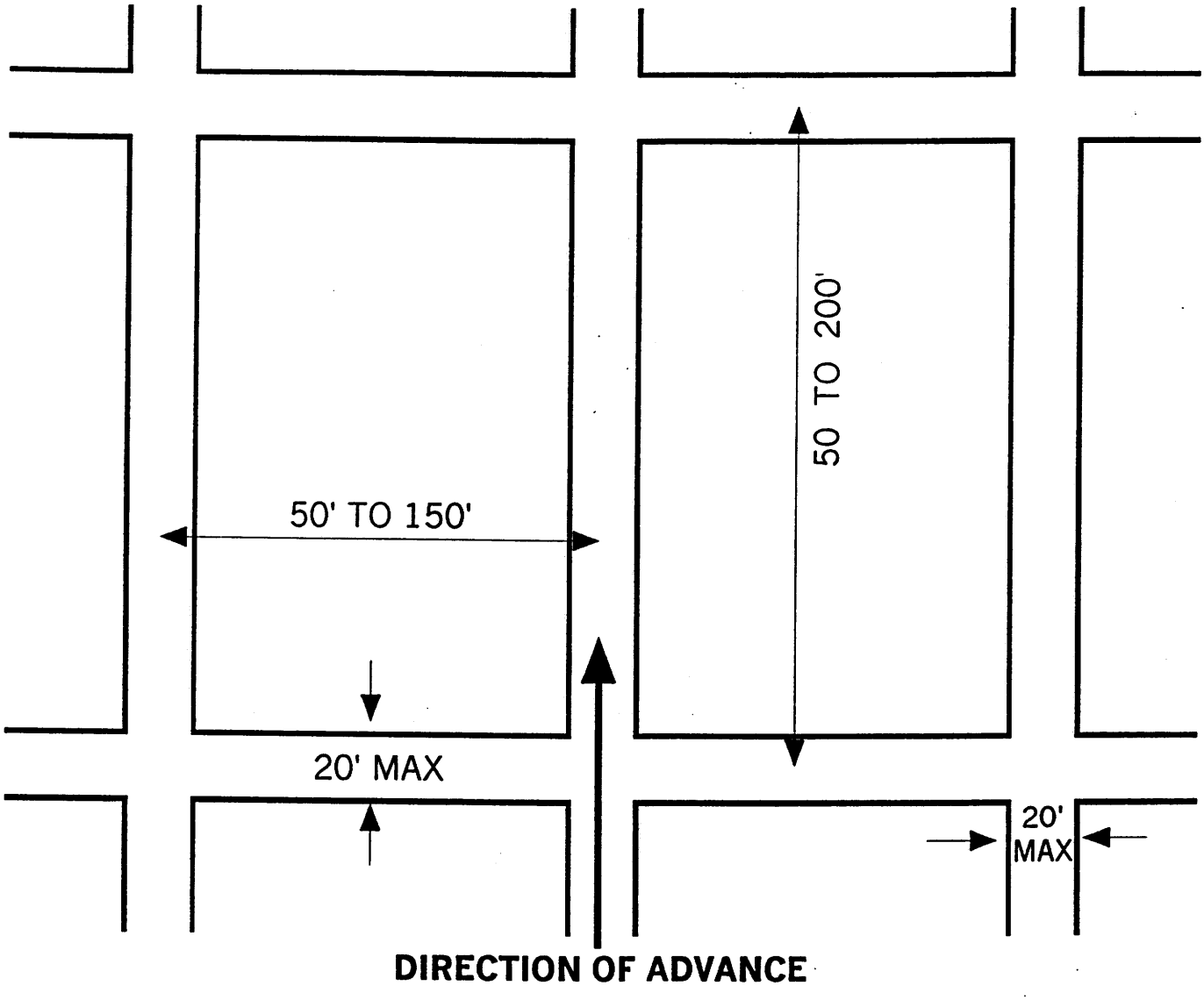
Scale 1" = 10 feet

No work will be done inby the new intersection until all roof bolts are installed The inby face may be accessed for examination by staying two rows of bolts from the newly created intersection.

FULL ROOF BOLTING PLAN

ENTRY CONFIGURATION

CROSSCUT AND ENTRY CENTERS



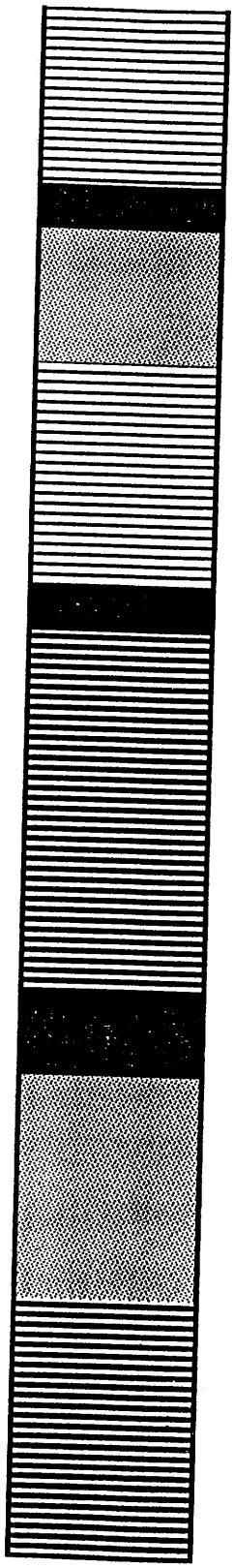
The initial mine projections of the main line development utilize 70 foot by 100 foot centers for entries and crosscuts. These conservative dimensions will be utilized initially for the main line development where the cover will be less than 1,000 feet. Smaller blocks will be utilized infrequently where the initial slope development is occurring and the cover is shallow.

THIS PAGE IS CONSIDERED A SKETCH, NO SCALE IS GIVEN BECAUSE THE DIMENSIONS DEPICT A RANGE OF VALUES.

9/97

COLUMNAR SECTION OF ROCK TYPES

HORIZON MINE



INTERBEDDED SHALE AND SILTSTONE

COAL : CASTLEGATE A SEAM 0 TO 5 FEET

SANDSTONE : ABERDEEN SANDSTONE
0 TO 20 FEET

INTERBEDDED SHALE AND SILTSTONE
50 TO 70 FEET

COAL : SUB - A SEAM 0 TO 5 FEET

INTERBEDDED MUDSTONE AND SILTSTONE
75 TO 100 FEET

HORIZON MINE

COAL : HIAWATHA SEAM 5 TO 9 FEET

SANDSTONE : SPRING CANYON SANDSTONE
50 TO 100 FEET

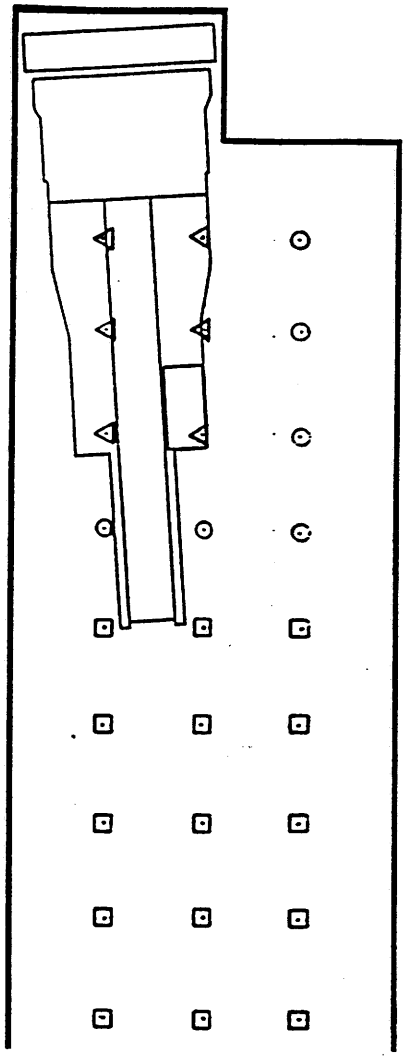
INTERBEDDED MUDSTONE AND SILTSTONE

NOT TO SCALE - SEAM THICKNESSES ARE SHOWN ABOVE

Horizon Roof

FIGURE 7 DISABLED MINER RECOVERY A -7

INSTALLATION OF ROOF SUPPORT WHEN A REMOTE CONTROLLED CONTINUOUS MINING MACHINE BECOMES DISABLED INBY SUPPORTS



TEMPORARY SUPPORTS SHALL BE SET TO 4 FEET INBY WHERE THE WORK WILL BE PERFORMED.

TEMPORARY SUPPORTS SHALL BE REMOVED BY REMOTE MEANS.

LEGEND

△ - BLOCKING SHALL BE PROVIDED ON TOP OF THE MINER WHERE POSSIBLE.

⊙ - TEMPORARY SUPPORT SET ON FIVE FOOT CENTERS (POSTS OR JACKS)

⊡ - PERMANENT SUPPORT IN ACCORDANCE WITH THIS PLAN. (5 ' CENTERS)

1" SCALE 1 INCH = 10 FEET

U. S. Department of Labor

Mine Safety and Health Administration
P.O. Box 25367
Denver, Colorado 80225–0367

Coal Mine Safety and Health
District 9

SEP -7 1999

David B. Miller
Business Manager
Lodestar Energy, Inc.
HC 35, Box 370
Helper, UT 84526

RE: Horizon Mine
ID No. 42-02074
Ventilation Plan

Dear Mr. Miller:

The cover letter for the approval of the ventilation plan, dated August 24, 1999, is hereby modified to eliminate item 1 and allow roof control work specified in the recently approved roof control plan. A tentatively approved roof control plan was approved on September 3, 1999. This roof control plan allows for the rehabilitation of any currently developed areas of the mine. The remainder of the ventilation approval letter remains in effect.

A copy of this letter shall be made available to the miners and reviewed with all miners affected by this plan.

Sincerely,

John A. Kuzar
District Manager

Enclosure

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▸ 1

To	From
Bill Taylor/John Walters	Bill Zeitz
Dept./Agency	Phone #
Fax #	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

U. S. Department of Labor

Mine Safety and Health Administration
P.O. Box 25367
Denver, Colorado 80225-0367
Coal Mine Safety and Health
District 9

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 8

To	From
John Walters	Bill Reitze
Dept./Agency	Phone #
Fax #	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

AUG 24 1999

David B. Miller
Business Manager
Lodestar Energy, Inc.
HC 35, Box 370
Helper, UT 84526

RE: Horizon Mine
ID No. 42-02074
Ventilation Plan

Dear Mr. Miller:

The ventilation plan, received by telefax on August 23, 1999, consisting of a cover page and 6 pages, plus the item as discussed and noted between John Walters and W. P. Reitze on August 24, 1999, has been approved in accordance with 30 CFR 75.370(a)(1). The plan is subject to revision at any time and shall be reviewed by MSHA at least once every six months. Before any changes are made in the approved ventilation system, they shall be submitted to and approved by the District Manager prior to implementation.

This plan applies specifically to the examination of the mine, and the pumping of water and associated work and/or maintenance. This plan approval *does not allow* the following:

1. Roof bolting, timbering, or other roof control related tasks until the roof control plan is approved. If adverse roof conditions are encountered during examinations, personnel will be withdrawn from the area and a roof control plan shall be submitted and approved prior to any other work being performed in the mine.

2. The removal of any material (rock, coal, etc.) from its natural deposit.

3. The pumping of water to a level lower that shown in figure 9.

A copy of this plan shall be made available to the miners and reviewed with all persons affected by this plan at the mine.

Sincerely,

John A. Kuzar
District Manager

Enclosure

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 8

To	From
Bill Taylor	Bill Reitze
Dept./Agency	Phone #
Fax #	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

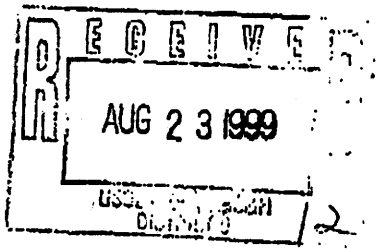
THE OPERATOR OF HORIZON MINE HEREBY ADOPTS AND WILL FOLLOW THIS VENTILATION PLAN AND ANY APPROVED SUPPLEMENTS AND/OR REVISIONS THEREOF.

A. General

1. Mine Name Horizon Mine

Vent

2. Company Name Lodestar Energy, Inc.



3. Mine Identification Number 42-02074

4. Company Representative Dave Miller

THIS PLAN IS TO BE USED ONLY WHILE THE MINE IS IDLE AND WILL APPLY TO PUMPING WATER, EQUIPMENT INSTALLATION AND REMOVAL, AND EXAMINATION OF THE MINE AS REQUIRED BY 30 CFR 75.364. PRIOR TO ANY OTHER ACTIVITIES A VENTILATION PLAN MEETING THE REQUIREMENTS OF 30 CFR 75.370 THROUGH 75.372 WILL BE SUBMITTED AND APPROVED.

B. Fan Stoppage

The mine fan will be run continuously. Except as provided below, no person will be allowed to enter the underground portion of the mine during fan stoppages. At all times when the fan is intended to be operated and not involved with an unintentional fan stoppage the mine fans and the associated components including devices for measuring or recording pressure, shall be maintained in proper operating condition to the extent possible. If unintentional failure of the fan or the associated components occurs, the operator will complete repairs as soon as possible.

While the fan is stopped, workers will be allowed to enter that portion of the fan house that is on surface to perform maintenance on the fan or on the fan house. Only those persons needed to perform the maintenance will be allowed in the fan house while the fan is not operating. The methane content of the air in the fan house will be tested frequently. If the methane content of the air in the fan house is more than 1 percent, all work will cease until the methane concentration is reduced to below 1 percent.

2. Main Mine Fan

The Jeffrey 8HU60 fan installed in the Horizon fan house is capable of providing 200,000 cfm and is capable of attaining sufficient air quantity to comply with the minimum airflow requirements of 30 CFR 75.325 (b). The mine fan is offset a minimum of 15 feet as is shown on Figure 10.

APPROVED CMS & H AUG24 '99

Section and Face Ventilation

The mine is currently IDLE and no production will occur until MSHA has been notified and a new ventilation plan has been approved. This plan is only intended to allow continued water pumping and performing the weekly ventilation checks required by 75.364. The last open crosscut of the mine will be ventilated with at least 9,000 cfm of air. Idle faces will be ventilated with at least 1,500 cfm.

Equipment Installation and Removal

The quantity of air required in the area where installing or removing equipment shall be at least 9,000 cfm. Examinations of the quality and direction of air in the area where installing or removing equipment shall be made at intervals not to exceed 30 minutes.

E. Methane Control

1. Face Areas

All methane tests will be conducted at a point not less than 12 inches from the roof, floor, face or rib. Since no production will occur and all faces are currently bolted all faces can be examined from under permanently supported roof

2. Evaluation Points

A set of evaluation points will be used to monitor the effectiveness of ventilation in the area of the old works of the Blue Blaze Mine. The evaluation point shown on Figure 9 that was extracted form the previously approved plan. The evaluation point has been moved as the level of the water in the mine has decreased. The examination point **1EP-IN** will determine the characteristics of the air being directed into the area. The characteristics of the air coming out of the area will be monitored at point **1EP-OUT**. The examination will include checks for Methane, Oxygen deficiency, and the direction of air flow. The results of the examination will be recorded in a book at the evaluation point; as well as, in the examination record book kept in the mine office.

APPROVED CMS & H AUG24 '99

U. Dust Control

The following minimum dust control practices shall be applied to the following areas:

Transfer points	n/a
Loading Points	n/a
Feeder Breakers	n/a
Belt Haulage System	n/a

Along Roadways

1. Intake Air
2. Watering Until Damp or Use of CaCl or MgCL. Water shall be applied between the outside edges of the tire tracks in sufficient quantities that vehicles traveling on the roadway do not generate visible dust from the tires.

F. Construction of Ventilation Devices

All permanent ventilation controls shall be maintained to serve the purpose for which they were intended. If a permanent ventilation control is damaged, temporary controls shall be installed and the permanent control shall be repaired as soon as possible.

1. Stoppings

Permanent stoppings have been erected between the intake and return aircourse and shall be maintained to and including the third connecting crosscut outby the faces of the entries. Permanent stoppings are to be constructed of 8" x 8" x 16" or larger hollow cinder blocks or other approved stopping materials. If in the course of equipment removal ventilation controls are found to need repair, they shall be repaired immediately. The construction method shall consist of laying the blocks dry in a running bond. The stopping face will be coated on both sides with an MSHA accepted fibrous construction fire retardant sealant. Any wood used in construction of stoppings shall be coated with an approved fire retardant. Prefabricated metal stoppings installed according to manufacturer's recommendations may also be used for permanent stoppings. The installation will be in accordance with the manufacturers instructions. The joints between the panels and the edges of the stopping will be sealed with an MSHA accepted fibrous construction fire retardant sealant.

2. Seals - Permanent

Seals will be not be necessary during the duration of this plan.

APPROVED CMS & H AUG24 '99

D. Miscellaneous

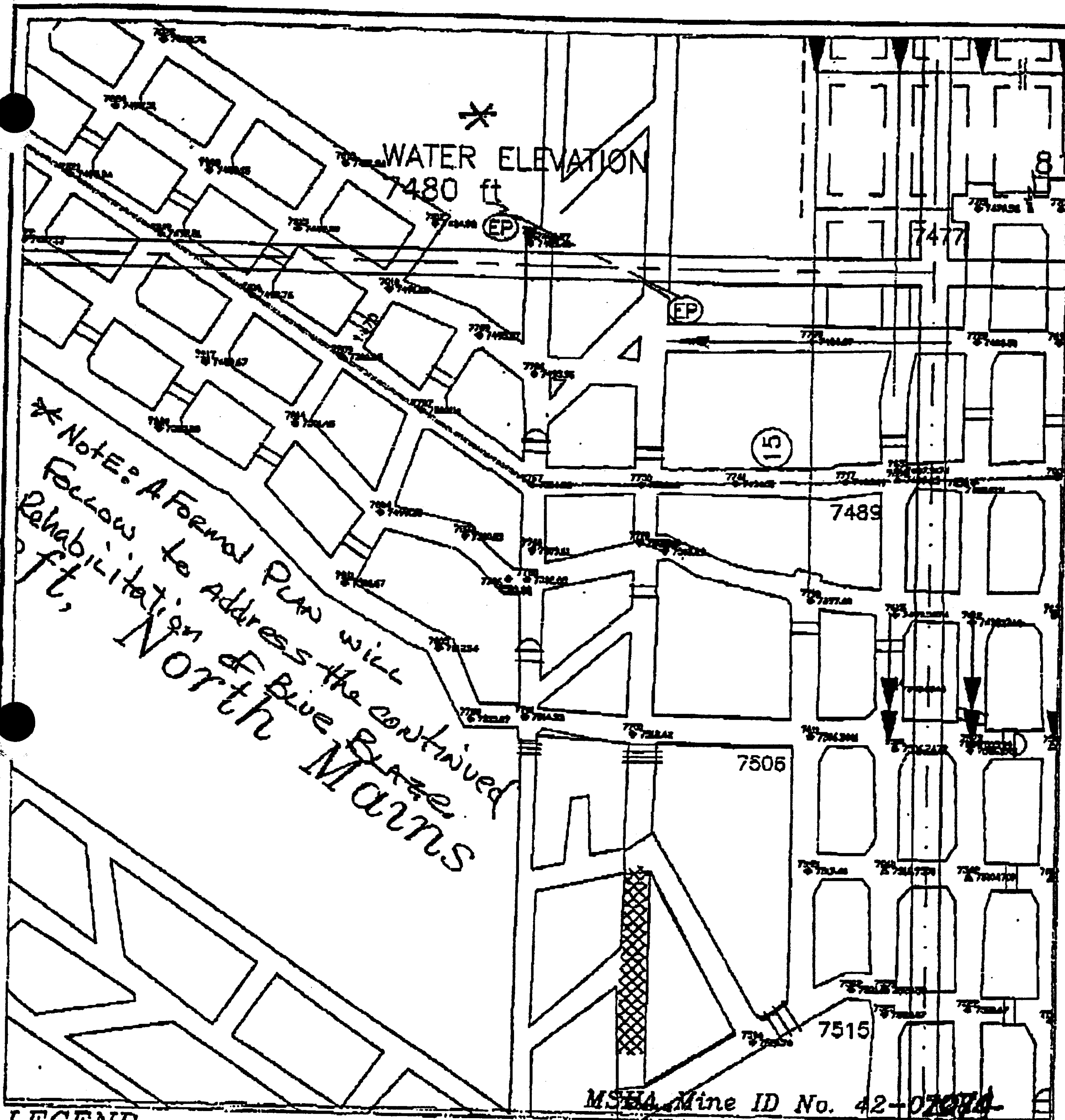
1. Diesel Equipment - Inby Areas

No Diesel equipment will be used inby the feeder breaker.

2. Diesel Equipment - Outby Areas

Only Light Duty Equipment meeting the definition of 75.1908(b) will be used to provide access to the pumps and working area.

APPROVED CMS & H AUG24 '99



LEGEND

- Intake Air
- Return Air
- Primary Escapeway
- Secondary Escapeway
- Stopping
- Stopping w/Door
- Regulator
- Overcast
- Seal

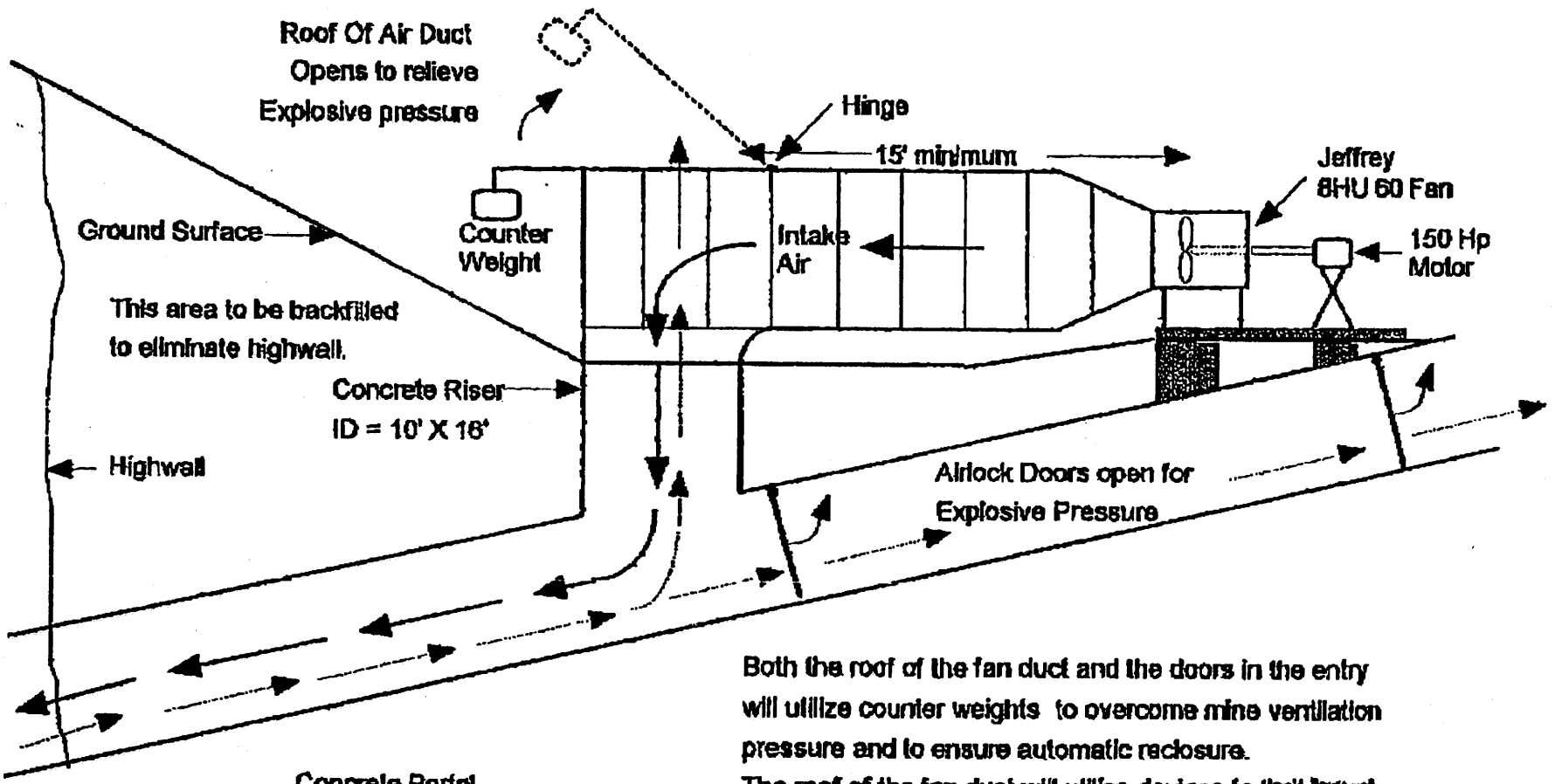
Lodestar Energy, Inc.
Mountain Operations, White Oak Mine
HC 35, Box 370 Helper, Utah 84526
Phone: (435) 637-9200 Fax: (435) 448-9456

Title: Horizon Mine *Figure 9			
Size: A	Drawn by: Lodestar Engineering	Drawing Number: s:\gh\horizon\current\1hor_1.dwg	Rev:
Scale: 1"=100'	Date: August 23, 1999	Sheet: 1 of 1	

*CHANGES MADE AS PER John Waters IN A PHONE CONVERSATION WITH ... ON 8-24-99

APPROVED CMS & H AUG 24 '99

Figure 10 Main Fan Explosion Protection



Concrete Portal
120' Long 8' High 18' Wide

Both the roof of the fan duct and the doors in the entry will utilize counter weights to overcome mine ventilation pressure and to ensure automatic reclosure.
The roof of the fan duct will utilize devices to limit travel to slightly less than 90 degrees to ensure reclosure.
The mass of the counterweights will be adjusted to ensure that the roof and doors will open as soon as any type of abnormal pressure is encountered.

540 RECLAMATION PLAN

541 General

541.100 Commitment

Upon the permanent cessation of coal mining and reclamation operations at the Horizon Mine, Horizon will close, backfill, or otherwise permanently reclaim all affected areas in accordance with the R645 regulations and this reclamation plan.

541.200 Surface Coal Mining and Reclamation Activities

No surface coal mining and reclamation activities will be conducted in the permit area.

541.300 Underground Coal Mining and Reclamation Activities

All surface equipment, structures, or other facilities not required for continued underground mining activities and monitoring, unless approved by the Division as suitable for the post-mining land use or environmental monitoring, will be removed and the affected lands reclaimed following permanent cessation of mining operations.

541.400 Environmental Protection Performance Standards

The plan presented herein is designed to meet the requirements of R645-301 and the environmental protection performance standards of the State Program.

542 Narratives, Maps, and Plans

542.100 Reclamation Timetable

A timetable for the completion of each major step in the reclamation plan is presented in Figure 5-1.

542.200 Plan for Backfilling, Soil Stabilization, Compacting, and Grading

The regrading plan for the Horizon Mine was designed to meet the objectives of balancing cut and fill quantities and maintaining a geotechnically and erosionally stable base. The primary features of this plan are:

- Removal of the pad upon which surface activities will be constructed at the mine, thereby creating a slope which will adequately drain while minimizing long-term erosion concerns;
- Backfilling to remove highwalls within the objectives noted above (cut and fill balance, site stability, and erosion control),
- Construction of stable channels across regraded areas;
- Placement of topsoil;

- Revegetation and mulching of the topsoiled site; and
- Removal of the sedimentation pond (together with accompanying regrading, topsoiling, revegetation, and mulching of the sedimentation pond area) and implementation of interim sediment-control measures.

The estimated cut quantity for the Horizon facility is approximately 16,196 cubic yards with an estimated fill of 16,298 cubic yards (see Table 5-2). Regrading activities will continue until the final surface configuration defined by Plates 5-5 and 5-6 is approximated. Details regarding topsoil placement and revegetation following regrading are provided in Chapters 2 and 3, respectively.

Building Demolition. Prior to significant regrading activities at the Horizon facility, existing buildings, retaining walls, utilities, coal-handling facilities, and other above-ground structures will be removed from the area. To the extent possible, these structures and facilities will be salvaged. Nonhazardous and nonflammable materials, such as concrete and steel, may be used as backfill in areas such as the sediment pond, highwalls, and cut slopes. If thus disposed of, these materials will be incorporated into the backfill under at least 4 feet of soil cover in a manner that will not create voids within the backfill or reduce the effective compaction necessary for backfilling. If foundations will not interfere with regrading activities, they will be left in place for on-site burial under at least 4 feet of soil cover.

Non-coal wastes found during reclamation, such as garbage, abandoned mining machinery, lumber, and other combustible materials generated during previous mining activities, will be segregated if feasible and stored in a controlled manner in a temporary storage area as determined at the time of reclamation activities. Final disposal of such waste will be in the backfill (as indicated above) or at a State-approved solid waste disposal facility, as appropriate. Notwithstanding any other provision of the R645 Rules, any non-coal mine waste defined as "hazardous" will be handled in accordance with the requirements of Subtitle C of RCRA and any implementing agency.

Those materials requiring off-site disposal will be placed in a permitted landfill. Final decisions regarding salvage or disposal of structures and equipment will be made just prior to reclamation following an assessment of the salvageability of the structures and equipment.

Backfilling and Compaction. As indicated previously in this M&RP, the surface at the Horizon Mine was originally disturbed between the 1920s and the 1950s by previous mining operations. These prior operators made no effort to salvage any topsoil or other soil material for subsequent site reclamation. Therefore, restoration to a contour that approximates pre-mining conditions is neither practical nor required by the regulations. However, it is the intent of Horizon to restore the area to a topography that is compatible with the post-mining land use, using materials that are available at the site (Plates 5-5 and 5-6).

All vegetation, organic matter, and debris will be cleared from areas to receive fill. The cut material from site regrading will be placed as fill and graded to facilitate drainage from the mine site and contributing side areas. All fill placed during recontouring of the site will be compacted to at least 85 percent of maximum Proctor density (ASTM D698). Compaction will be accomplished using repeated passes of rubber-tired equipment, rollers, and other appropriate equipment.

Side hill embankments, where the width is too narrow to allow access by compaction equipment, will be initially constructed by spreading the soil with a dozer, but only to a width necessary to allow compaction equipment access. After this is achieved, the fill will be placed in lifts and compacted to at least 85 percent of maximum Proctor density.

Lifts will be placed with a thickness when compacted of no more than 8 inches. Care will be taken to ensure that fill materials are not frozen during placement or compaction. Any areas that are damaged by freezing will be reconditioned, reshaped, and recompacted to at least 85 percent of maximum Proctor density. All fill placement and compaction activities will be overseen by an experienced engineer.

In general, grading and backfilling operations will proceed from the upstream end of the surface facilities to the downstream end, thus allowing the sedimentation pond to remain effective for as long as possible.

Construction of Reclamation Channels. Reclamation channels will be constructed at the locations shown on Plate 5-5. These channels will be constructed to capture runoff from

undisturbed areas and convey this runoff to and through Portal Canyon and Jewkes Creek. Details regarding the design and construction of these channels are provided in Section 760 of this M&RP.

As noted on Plate 5-5, slopes adjacent to the reclaimed streams are generally much shallower than the natural slopes upstream from the disturbed area (where natural slopes on the hillsides adjacent to the streams are typically 1.5H:1V or steeper). Hence, access to the streams by wildlife and livestock under post-mining conditions should not be hindered within the reclaimed area.

Sedimentation Pond Removal and Interim Sediment Control. Prior to the start of reclamation activities, temporary silt fences will be emplaced in Jewkes Creek perpendicular to the flow direction in accordance with Figure 5-2. A minimum of four such silt fences will be installed in the creek downstream from the by-pass culvert (UC-1) outlet but within the disturbed area prior to removal of the culvert. The silt fences will be located in an area convenient for maintenance and cleanout. The silt fences will be removed when reclamation construction activities are completed. During reclamation, the silt fences will be periodically inspected and accumulated sediment will be removed from behind the silt fences when required to minimize downstream impacts.

The sedimentation pond will be retained for as long as practical during reclamation. Once backfilling and grading operations proceed to the location of the pond, it will be removed. Because the pond is designed primarily as an excavated structure, removal of the pond will consist primarily of backfilling. This removal will be accomplished using backhoes, loaders, dozers, and other appropriate earthmoving equipment.

As soon as regrading of an area no longer allows that area to drain to the sedimentation pond, silt fences will be installed along the base of the slopes adjacent to the associated stream to control erosion on an interim basis prior to revegetation success. These silt fences will be installed using a supportive backing and burying the toe of the filter fabric as noted in Figure 5-2.

On a temporary basis, straw-bale dikes may also be installed as necessary to control localized

erosion prior to the establishment of revegetation efforts. If installed, locations of the straw-bale dikes will be selected to reduce sediment contributions to runoff based on field observations. Straw-bale dikes will be installed by keying the bales into the ground as noted in Figure 5-2.

542.300 Final Surface Configuration Maps and Cross Sections

Final surface configuration maps and cross sections for the Horizon site are provided on Plates 5-5 and 5-6, respectively. No facilities related to the coal mining operations will remain in the permit area following reclamation.

542.400 Removal of Temporary Structures

All surface structures associated with the mining operation will be removed as outlined in Section 542.200. A description ensuring that all structures and the sedimentation pond have been removed will be provided to the Division before seeking bond release or abandoning the permit area.

542.500 Removal of Sedimentation Pond

Information regarding removal of the sedimentation pond associated with the Horizon Mine is provided in Section 542.200. The timetable for removal of this pond is indicted in Figure 5-1.

542.600 Roads

All roads within the disturbed area will be reclaimed immediately after they are no longer needed for mining and reclamation operations. These roads will be graded and/or backfilled as indicated above. Topsoil will be applied to the regraded surfaces and the area will be revegetated as discussed in Chapters 2 and 3, respectively.

542.700 Final Abandonment of Mine Openings and Disposal Areas

Abandonment of Openings. When no longer needed for mining operations, all portals will be

sealed and backfilled. Prior to the sealing of the mine openings, all combustible materials will be removed from the portal area. All structures that would interfere with sealing of the mine openings will also be removed. The permanent closures will be constructed to prevent access to mine workings by people, livestock, and wildlife. Potential surface drainage will also be kept from entering the sealed entries.

All mine openings will be sealed at least 20 feet inside the mine opening. Prior to installation of the seal, all loose material will be removed from the roof, floor, and rib of the mine within the seal area. The seal will then be constructed using solid concrete blocks with nominal dimensions of 8 inches high, 8 inches wide, and 16 inches long. Mortar will consist of one part cement, three parts sand, and no more than 7 gallons of water per sack of cement.

In the bottom course, each block will be laid with its long axis parallel to the rib. The long axis in succeedingly higher courses will be perpendicular to the long axis of the blocks in the preceding course. The seal will be recessed at least 8 inches deep into each rib and 8 inches deep into the floor. No recess will be made into the roof.

The seals will have a thickness of approximately 16 inches. Following seal construction, the entries will be backfilled from the seal to the outside surface with soil that is sloped at the surface to match the final slope at the entry.

Disposal of Excess Spoil. No excess spoil will be generated in the permit area.

Disposal of Coal Mine Waste. Coal mine waste that is temporarily stored on the surface at the Horizon Mine during operation will be removed from the Horizon Mine prior to reclamation. This material will be handled as outlined in prior sections of this M&RP.

Disposal of Non-Coal Mine Wastes. All non-coal (non-waste rock) waste generated from mining and reclamation operations will be disposed of as outlined in Sections 526.100 and 528.300. Following cessation of mining activities, non-coal mine waste that is still temporarily stored at the site will be removed and disposed of as outlined in Section 528.300. Non-coal waste that is generated during the course of reclamation that cannot be salvaged will be disposed of at an off-site permitted facility.

542.800 Estimated Cost of Reclamation

The estimated cost to reclaim the Horizon Mine surface facilities is provided in Appendix 5-3.

550 RECLAMATION DESIGN CRITERIA AND PLANS

551 Casing and Sealing of Underground Openings

Each underground opening to the mine will be sealed and backfilled when no longer needed for monitoring or other use approved by the Division upon a finding of no adverse environmental or health and safety effects. Permanent closure measures for portals will be as described in Section 542.700. This closure method has been designed to prevent access to the mine workings by people, livestock, fish and wildlife, and machinery. The closures have also been designed to keep water from flowing from the mine workings to prevent acid or other toxic drainage from entering ground and surface waters.

Monitoring wells associated with the Horizon Mine will be sealed when no longer needed for monitoring groundwater. Sealing of these wells will occur in accordance with the requirements of the Utah Division of Water Rights (R655-4-12).

552 Permanent Features

552.100 Small Depressions

During final grading and spreading of topsoil, small depressions may be left in the soil. The purpose of these depressions will be to retain moisture, minimize erosion, and assist in revegetation of the site.

552.200 Permanent Impoundments

No permanent impoundments will be left following reclamation.

553 Backfilling and Grading

Plans for backfilling and grading of the site upon reclamation have been presented in Section 542.200. This plan was designed to comply with the applicable requirements of R645-301-500 and R645-301-700. As indicated in Section 542.200, backfilling and grading operations will be conducted in a controlled manner.

553.100 Disturbed Area Backfilling and Grading

Approximate Original Contour. As indicated in Section 521.100 of this M&RP, the area of the Horizon surface facilities was disturbed by previous mining activities. No pre-mining topographic maps of the area are known to exist. The reclamation plan has been designed to backfill and grade the site to achieve the assumed approximate original contour (i.e., to blend into the surrounding topography) and eliminate highwalls associated with the Horizon Mine.

Elimination of Highwalls, Spoil Piles, and Depressions. The backfilling and grading plan has been designed to eliminate highwalls at the site that were associated with the Horizon Mine. No spoil piles exist. With the exception of the small depressions discussed in Section 552.100, no depressions will remain at the site following reclamation.

Slope Stability. According to R645-301-553.130, reclamation slopes shall not exceed the angle of repose and shall have a minimum long-term static safety factor of greater than 1.3. The angle of repose of any soil is a function of the soil gradation, moisture content, plasticity, and degree of compaction of the soil. It is expected that the reclamation fill will be fairly dry and will be placed without the benefit of significant compaction or moisture conditioning.

Based on information provided in Chapter 2 of this M&RP, soils at the Horizon site consist of low-plasticity, cohesive materials with a wide assortment of grain sizes. The angle of repose in such soil is dependent not only on interparticle friction, but also on cohesion, which is dependent on the density, moisture content, and compaction moisture content of the soil. In general, as long as they do not become saturated or are not fissured, cohesive soils have a greater angle of repose than non-cohesive soils and can maintain vertical or near-vertical slopes under certain conditions. The angle of repose of a loose sand generally varies

between 30 and 35 degrees (Holtz and Kovacs, 1981). Therefore, presumably, the angle of repose of a slightly cohesive granular soil will be greater than 30 to 35 degrees. For the purpose of this site, the angle of repose will be assigned a value of 35 degrees, which corresponds to a slope of about 1.5 horizontal to 1 vertical (1.5H:1V).

Backfilled and regraded slopes have been designed to not exceed the angle of repose. Calculations presented in Appendix 5-2 indicate that the minimum safety factor of emplaced soil, at a slope of 1.5H:1V, is 1.4 under saturated conditions and 1.9 under unsaturated conditions. The static safety factor will increase with decreasing slope. The slopes have thus been designed to prevent slides.

Erosion and Water Pollution. Temporary sediment-control measures will be implemented during and following backfilling and regrading as outlined in Section 542.200 and Section 244 of this M&RP. As vegetation becomes established on the reclaimed surfaces, erosion potentials will be further minimized. By minimizing erosion, water pollution will also be precluded. Additional water-quality concerns do not exist at the site (see Chapter 7).

In order to blend with natural slopes, soil may be replaced during reclamation at slopes of up to 1.5H:1V. The steepness of these slopes will be reduced at their base, providing a concave slope. As noted above, these slopes will be geotechnically stable. Dozers will be used during placement of the topsoil or substitute topsoil on these steep slopes, taking care to achieve a reasonably uniform thickness of the final soil cover.

Post-Mining Land Use. The disturbed area will be backfilled and regraded in a manner that supports the approved post-mining land use.

553.200 Spoil and Waste

Spoil. No spoil will be generated within the permit area.

Refuse Piles. Refuse generated from the Horizon Mine will be handled as outlined previously in this M&RP.

Coal Processing Waste. No coal processing waste will be generated within the permit area.

553.300 Exposed Coal Seams, Acid- and Toxic-Forming Materials, and Combustible Materials

Exposed Coal Seams. All coal outcrops exposed by Horizon will be covered with a minimum of 4 feet of nontoxic and noncombustible materials during final backfilling and grading. This cover material may consist of material removed during grading of the site (see Section 542.200), subsoil, and/or topsoil.

Acid- and Toxic-Forming Materials. No acid- or toxic-forming materials exist at the site (see Section 528.300).

Combustible Materials. All combustible materials that are exposed, used, or produced during mining will be disposed of off site as outlined in Section 526.100.

553.400 Cut-and-Fill Terraces

No cut-and-fill terraces occurring from or used by the Horizon operation will be retained at the site following final grading activities.

553.500 Highwalls From Previously Mined Areas

Several highwalls existed within or adjacent to the disturbed area that are the result of previous mining operations. The reclamation plan has been designed to eliminate those highwalls within the disturbed area.

553.600 Previously Mined Areas

As noted on Plate 5-4, several portals existed within and near the disturbed area boundary prior to construction of the Horizon Mine surface facilities. The reclamation plan has been designed to eliminate pre-existing highwalls within the disturbed area following reclamation. Section 542.200 of this M&RP indicates that the plan has been designed with a reasonable

balance between cut and fill quantities. Section 553.100 indicates that slopes of up to 1.5H:1V may be required to eliminate the highwalls. The steepness of these slopes will be reduced at the base to provide a concave profile. According to Appendix 5-2, these slopes will be geotechnically stable. Procedures to minimize erosion on these reclamation slopes are discussed in Section 553.100.

The anticipated post-mining contours noted on Plate 5-5 indicate that the available materials are sufficient to eliminate all existing highwalls within the disturbed-area boundary during reclamation. However, if field conditions indicate that all available materials are not sufficient to eliminate the existing highwalls without exceeding the performance criteria outlined in the preceding paragraph, small sections of highwall may be retained. Division approval will be obtained before any highwalls are retained. If it is necessary to retain any pre-existing highwalls at the site, analyses will be performed to show that the retained highwalls are stable and compatible with the postmining land use. Specifically, this analysis will address the requirements of Sections R645-301-553.600 through R645-301-553.650 of the regulations.

553.700 Backfilling and Grading - Thin Overburden

No surface coal mining and reclamation activities involving thin overburden will occur within the permit area.

553.800 Backfilling and Grading - Thick Overburden

No surface coal mining and reclamation activities involving thick overburden will occur within the permit area.

553.900 Regrading of Settled and Revegetated Fills

As indicated in Section 537.200 of this M&RP, all settled and revegetated fills which currently exist within the disturbed area due to historic mining in the area will be regraded during site construction activities. No plan is presented in this M&RP to retain these settled and regraded fills following reclamation.

560 PERFORMANCE STANDARDS

Coal mining and reclamation operations at the Horizon Mine will be conducted in accordance with the approved permit and the requirements of R645-301-510 through R645-301-553.

Task	Months From Start of Reclamation[a]							
	1	2	3	4	5	6	7	8
Remove Underground Facilities	■	■						
Seal Mine Portals			■					
Demolish Surface Structures			■					
Install Interim Sediment Control			■	■	■	■		
Grade, Backfill, and Compact				■	■	■		
Construct Reclamation Channels					■	■	■	
Remove Sedimentation Pond							■	
Place Topsoil					■	■	■	
Revegetate							■	■

[a] Schedule assumes that weather conditions are conducive to reclamation activities

MINE, HAULROAD, AND LOADOUT LOCATIONS

The following fold-out maps show the location of the Horizon Mine portal, the Raw Coal Stockpile, the Haulroad, and the contracted Wildcat Loadout, which is the shipping point by rail for Horizon Coal.

The starting and ending points on the attached maps are:

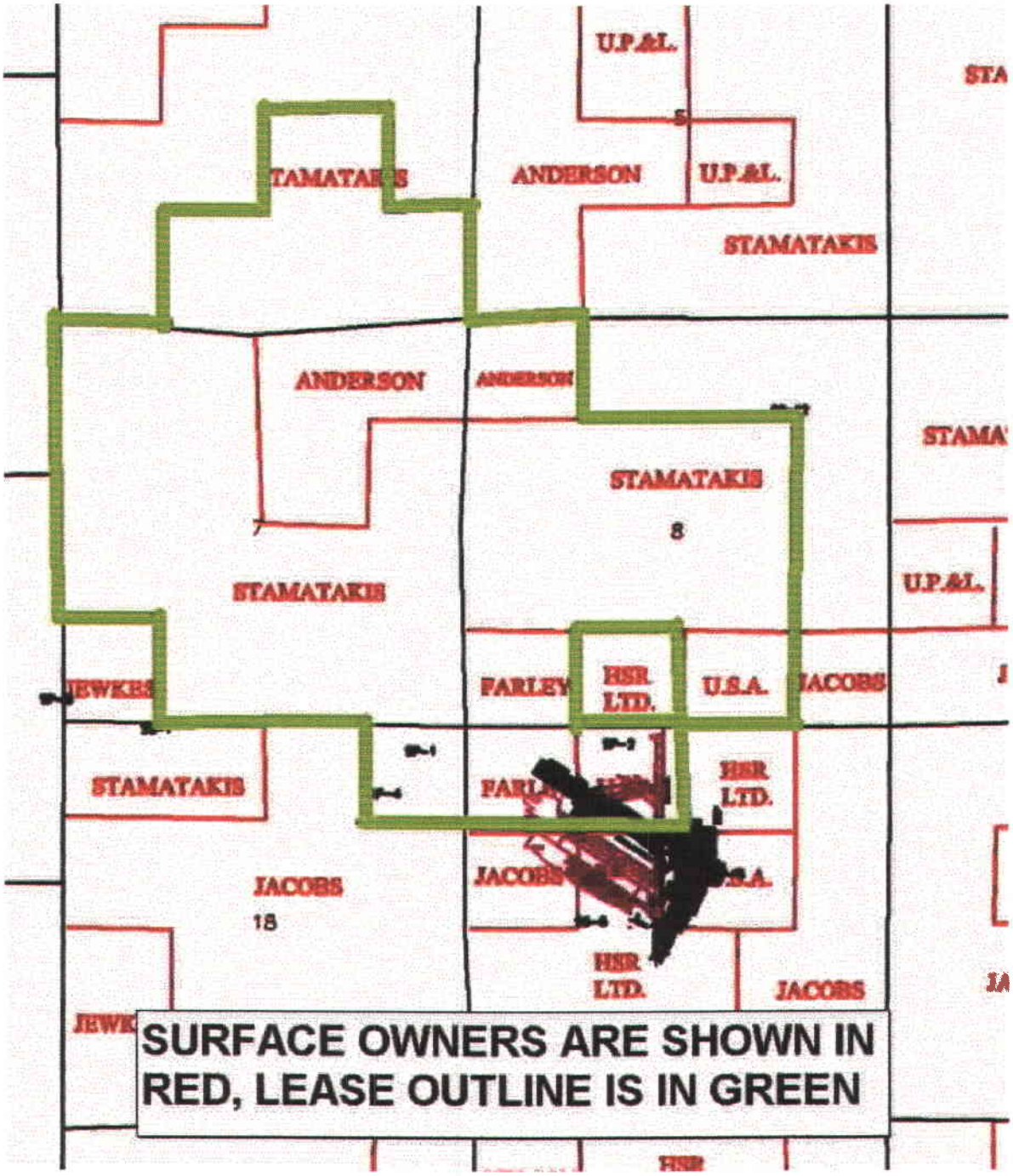
Horizon Mine Portal:	**Section 17 of T13S R8E** **Jump Creek Quadrangle**
Wildcat Loadout:	**Section 33 of T13S R9E** **Standardville Quadrangle**

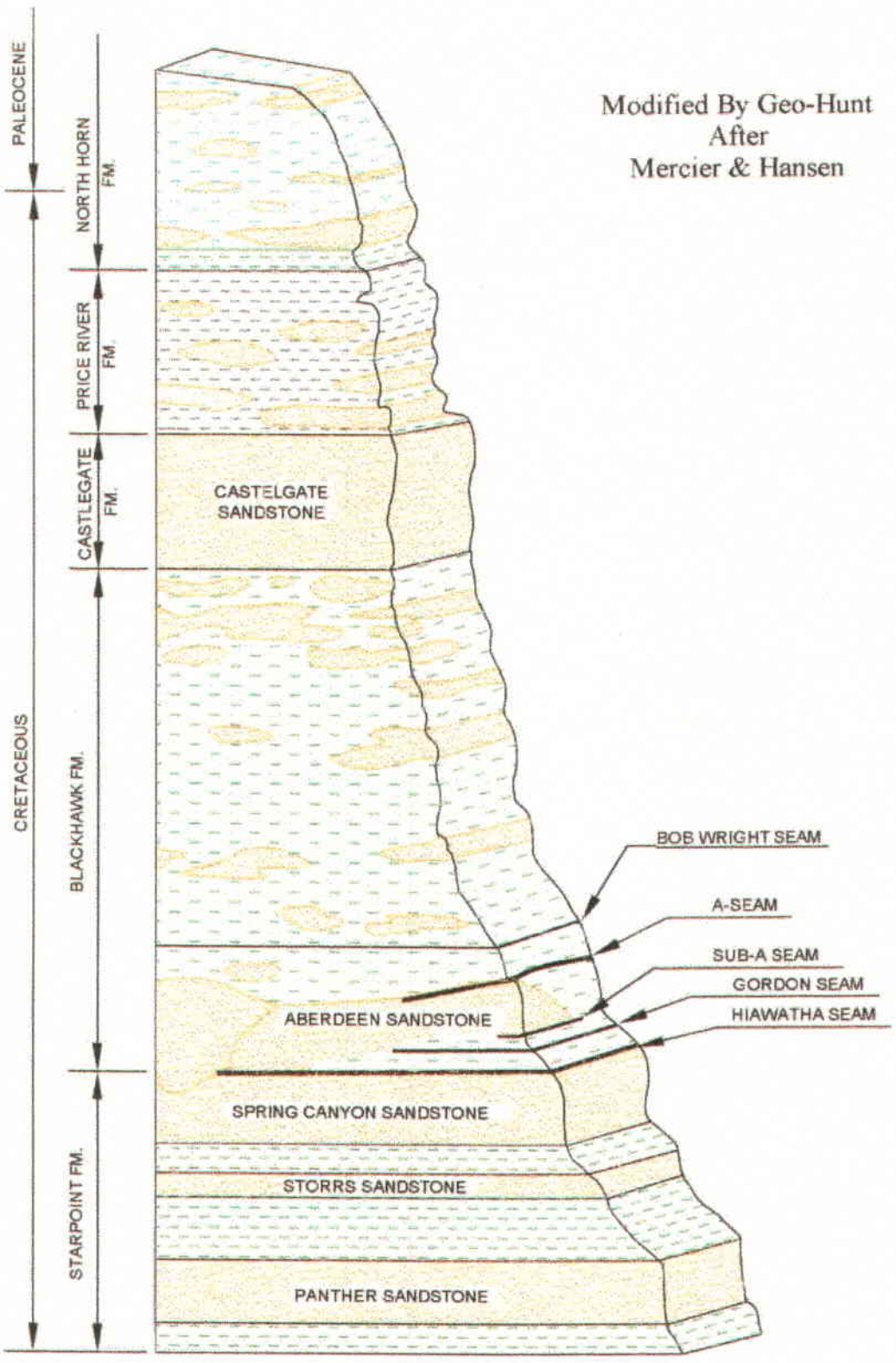
Trail
North
Mine
Ra

MAP TABLE OF CONTENTS

TAB	MAP
1	Lease Map
2	Surface ownership Map
3	Projection Map
4	Geologic Map
5	Stratigraphic Column
6	Isopach Map - A Seam Upper Split
7	Isopach Map - A Seam Parting
8	Isopach Map - A Seam Lower Split
9	Isopach Map - Hiawatha Seam
10	Yearly Mine Plan Map

SURFACE OWNERSHIP MAP





Generalized Stratigraphic Column

Horizon Coal Property